

**Developing a framework to address the challenges faced by small-scale farmers in South Africa**

Research report

presented to the

**Graduate School of Business Leadership**

**University of South Africa**

by

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Submitted in partial fulfilment of the requirements for the degree

**MASTER'S DEGREE IN BUSINESS ADMINISTRATION**

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**Date:** 8 December 2022

## Declaration

I, Alexander Wallace Thornhill, declare that this thesis is my own work. It is being submitted for the degree of Master's in Business Administration to the University of South Africa, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

A handwritten signature in black ink, appearing to read 'TAW', is centered on the page.

8 December 2022

## **Acknowledgements**

I wish to express my sincere gratitude and appreciation to the following persons and institutions:

- First and foremost, I am grateful to my Heavenly Father, to whom I owe all I have achieved in life. Without Him, this would not have been possible.
- Special thanks to Dr Colene Hind, my supervisor, for her continued support, guidance and patience during my studies.
- CIM and Premier FMCG, for the opportunity to grow and further my career, financing my studies as well as allowing me time to complete my studies part time.
- To my parents, Bridget and Deon, for all their support, prayers and encouragement.
- Family and friends, for always being there and providing continuous encouragement.

## Abstract

Food security is a threat globally and small-scale farmers, who include poor and marginalised individuals, struggle to realise profitable yields. The challenges faced by small-scale farmers hinder agricultural development, not only in South Africa but across Africa. There is an ever-intensifying drive to reduce the challenges of small-scale farmers to ensure sustainable food security. The objectives of this research were to define a small-scale farmer in South Africa and apply the definition, to define food security and how small-scale farmers can benefit, to determine how sustainable agricultural practices can benefit small-scale farmers, to explore the challenges of small-scale farmers in South Africa and to construct a conceptual framework to address the challenges. Small-scale farms produce only 5% of the total agricultural output of South Africa, while there are more than 300,000 small-scale farms and a further 2.3 million households engaging in subsistence-oriented agricultural activities. A qualitative research approach was adopted for this study, using a non-random or purposive sampling technique to appropriately select the participants. This was subject to the participants meeting the inclusion criteria which were based on the derived definition of a small-scale farmer. In-depth interviews were conducted to collect data from 30 participants. The data collected were analysed using the thematic content analysis technique. During the interviews, demographic and farm business information was collected to determine the impact on productivity and food security of small-scale farmers. The findings from the study further identified the challenges of small-scale farmers in South Africa, *inter alia*, access to information, access to capital, access to markets, access to technology, access to land and land security. Based on the findings, a conceptual framework was developed to aid in mitigating the challenges experienced by small-scale farmers. The framework used environmental and marketing strategies to improve the productivity of small-scale farmers. The research report shows that a framework can specify long-term actions to reduce or eliminate the challenges of small-scale farmers in South Africa, which may increase farm productivity, improve food security and enhance the livelihood of small-scale farmers.

**Keywords:** Small-scale farmer, food security, sustainable agriculture, challenges, mitigating strategies

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## **LIST OF ABBREVIATIONS**

**GDP** - Gross domestic product

**FAO** - Food and agriculture organization

**Ha** - Hectare

**TCA** - Thematic content analysis

# **Chapter 1**

## **Introduction and background**

This chapter outlines the research background, problem statement, research questions and research objectives of the study. The chapter also presents an abbreviated literature review of the relevant theory, an overview of the research methodology and the ethical aspects considered. The study aims to provide theoretical and empirical evidence through data collection and analysis.

### **1.1 Introduction**

South Africa is found on the southern tip of Africa, with the Atlantic Ocean stretching from the northern border with Namibia, past the southern tip all the way north to the border of Mozambique on the Indian ocean. The surface area covers 1,219,602 km<sup>2</sup>, with ecological areas ranging from bushveld to grasslands, forests, deserts and mountainous peaks. South Africa shares common boundaries with Namibia, Botswana, Zimbabwe, Mozambique and Swaziland, while Lesotho is landlocked within its borders. The three ocean sides of South Africa create a subtropical environment along the coast, with the altitude of the interior plateau accounting for warm climatic conditions. The annual rainfall is around 464mm, and thus South Africa is a relatively dry country (RSA, 2015).

Agriculture is critical for making food more available and for achieving food security globally. The agricultural sector accounts for nearly a third of the global gross domestic product (GDP), whilst 60% of the global population depends on agriculture for its survival (Herger, 2020; FAO, 2015). Food access and availability to low-income households are influenced by the greater demand for food, reduced productivity, high food prices and income inequalities. According to recent data published by the Food and Agriculture Organization (FAO), in developing countries around 13% of the population suffer from undernourishment, showing the challenges are already present in feeding the world's population. In 2018, the global population surpassed 7.6 billion people and it is predicted that by 2050 the global population will reach 9.2 billion people, corresponding to a global

food demand increase of 59-102%, almost double of what is globally produced currently (Pawlak and Kołodziejczak, 2020).

Within many African countries the agricultural industry accounts for up to 60% of the total manufacturing. Challenges faced by many farmers in Africa are: a decrease in farm sizes through fragmenting of larger farms; labour shortages with the younger labour force unwilling to remain within the agricultural sector, leading to an increased average age of the remaining farmers; and decreased yields and productivity (FAO, 2017). In addition, the African agricultural environment is known to be volatile and filled with uncertainties. The economy of Africa with its fluctuating markets, coupled with weather shocks, makes for a very uncertain livelihood, and increases the risks farmers face (Christiaensen and Demery, 2018).

Agriculture throughout Africa consists of family farms, with these farms being small parcels of land. The decision making often lies within the household of each family, which may impact the operational performance of the farm. Household decision making remains important, as it assists with transferring conventional farming wisdom down generations (Christiaensen and Demery, 2018). These small-scale farmers are vulnerable to high temperatures and water availability, which can have an influence on potential earnings and threaten the ability to produce and obtain food for the household. The gap between current yields and potential yields reflects the challenges of small-scale farmers in Africa; these include availability of improved production techniques, financing, market accessibility, transport, and a range of quality standards like traceability and certification (FAO, 2017).

Small-scale farmers are the drivers of the economies of not only South Africa but also many other countries within Africa (Mutero, Munapo & Seaketso, 2016). In the most recent agricultural census conducted by Stats SA (2020), there were 40,122 large-scale farms and more than 300,000 small-scale farming units. The general household survey from 2019 reported that in addition to the 300,000 units a further 2,3 million households were engaging in subsistence-oriented agricultural production activities (Stats SA, 2020). Even with the large number of small-scale farms, the large commercial farms produce

around 95% of all marketed agricultural output on farms, with an average size of 2,113 hectares (ha) (Mathinya, Franke, van de Ven & Giller, 2022).

While the agrifood system in South Africa is well developed, close to 26% of the population live with food insecurity. The small-scale farmers are vulnerable within the agrifood system due to challenges with infrastructure, inputs, markets and access to land (Von Loeper, Musango, Brent & Drimie, 2016). The presence of any challenge influences and hinders agricultural development (Mpandeli and Maponya, 2014). Despite the challenges, small-scale farmers remain the main source of employment, income, food security and source of food for many rural communities. A key challenge to overcome the food insecurity will be to produce more with less, all the while preserving and improving the livelihoods of small-scale farmers.

## **1.2 Background to the study**

The demand for food security, not only in South Africa but globally, is ever increasing; this drives the efforts to reduce the challenges of small-scale farmers. Small-scale farmers include poor and marginalised individuals who farm on small pieces of land and struggle to realise the required yields, resulting in increased food insecurity (Kamuna, 2019). The focus of small-scale farmers is not limited to food security – their production systems, which are currently a primary source for their own livelihood, can become a source of livelihood for the poor and rural areas. Small-scale farmers can assist with rural development, equating to sustainable production (Mutero, et al., 2016). Current studies show the food insecurity and the number of households affected by food insecurity across South Africa.

The challenges faced by small-scale farmers hinder agricultural development across South Africa. In order to achieve high production levels at the required quality levels, farmers require access to inputs. These inputs may vary according to the production unit and types of agricultural activities performed (Mpandeli and Maponya, 2014). Agriculture contributes to the economic development of a country, which can be realised through linking small-scale farmers to high-value markets within the agricultural supply chain,

broadening the availability of finance and providing the necessary training for all to benefit from the lucrative markets. However, these markets have a stringent demand for food safety and quality. The difficulty remains to satisfy the market with a consistent supply in a sustainable manner (Kamuna, 2019).

### **1.3 Problem statement**

Small-scale farmers contribute to the livelihood of many, including their surrounding community, and have the potential to contribute to the larger economy of South Africa. The challenges faced by small-scale farmers differ from those of mainstream agriculture and are not well understood. A better understanding of the unique challenges faced by small-scale farmers could aid in improving economic development and ensuring sustainable food security.

### **1.4 Research questions**

The research questions involve both theoretical and empirical questions, as follows:

T<sub>Q1</sub>: How is small-scale farming defined in the literature?

T<sub>Q2</sub>: How does food security apply to small-scale farmers?

T<sub>Q3</sub>: Why are sustainable agricultural practices important for small-scale farmers according to the literature?

E<sub>Q1</sub>: What are the current challenges of small-scale farmers in South Africa?

E<sub>Q2</sub>: How can a framework be applied to address the challenges of small-scale farmers in South Africa?

### **1.5 Research objectives**

T<sub>O1</sub>: To define, and apply the definition of, a small-scale farmer in South Africa.

T<sub>O2</sub>: To define food security and how small-scale farmers can benefit.



T<sub>03</sub>: To determine how sustainable practices can benefit small-scale farmers.

E<sub>01</sub>: To explore the challenges small-scale farmers in South Africa currently face.

E<sub>02</sub>: To construct a conceptual framework to address the challenges of small-scale farmers in South Africa.

## **1.6 Abbreviated literature review**

The section below sets out concepts and challenges identified by previous research relevant to the study. From these concepts, a detailed literature review will be presented in Chapter 2. The below concepts will be used to develop a conceptual framework.

### **1.6.1 Access to information**

There is a direct relationship between access to relevant and effective information and agricultural development. Through access to relevant information, small-scale farmers can improve their production capacity and access formal remunerative markets (Tadesse, 2008). It is important for these small-scale farmers to combine their traditional and indigenous farming techniques, which have been passed on through many generations, with more recent scientific approaches. Mutero, et al. (2016), found that the majority of respondents received agricultural information infrequently.

Farming is considered a knowledge-intensive industry, whether it involves a large commercial farm or a small-scale farm. Farmers rarely have a single channel which serves as a comprehensive source for all the required information. Due to this, many farmers are unaware of the various agricultural practices available to sustain crop and animal productivity. These farmers then rely on their own indigenous knowledge, which they believe to be more accurate and simpler than formal education and training. This often results in farming practices with low productivity that don't follow a sustainable agriculture production practice (Myeni, Moeletsi, Thavhana, Randela & Mokoena, 2019). Farmers require information on the availability and use of agricultural inputs (seeds,

fertilisers, equipment, subsidies and insecticides), markets, bank credit facilities, joint transport availability, insurance policies and animal husbandry (Rahman, Ara & Khan, 2020).

### **1.6.2 Access to capital**

Farmers who are able to obtain credit have good yields of quality products, meeting the market standards. According to findings from Mpandeli and Maponya (2014), the majority of small-scale farmers find it difficult to access enough capital and have never received credit for crop production. Many small-scale farmers have no title deed for their land, making it more difficult to apply for loans to invest on their farms due to lack of collateral (Myeni, et al., 2019). Due to the land tenure system of rural areas, small-scale farmers are unable to gain access to capital; this results in less capital available for land improvement (Shapi, 2017).

Credit providers and insurance companies find it difficult to deal with small-scale farmers due to the high risk, which stems from adverse weather conditions, moral hazards and anti-selection. Owing to these risk factors, loans incur increased transactional costs. Many small-scale farmers end up funding their farming operations from personal savings (Mutero, et al., 2016). Access to credit can help small-scale farmers overcome the financial constraints to adopt new and sustainable agricultural practices.

### **1.6.3 Access to markets**

Small-scale farmers have difficulty in reaching the formal markets. According to the findings of Mpandeli and Maponya (2014), many small-scale farmers are able and willing to supply the formal markets, but access is limited. The farmers who are able to secure access to these markets limit new entrants through charging them inflated prices to transport their products to the markets. Another reason some of these farmers struggle to sell through the formal market is the strict requirement for high quality products. The

farmers who are unable to sell in the competitive market are denied the opportunity to compete against commercial farmers. The small-scale farmers are mostly dependent on the sale of their products as a source of income. Government policies created with the goal of increasing food production don't take into consideration the distribution of the produce which can aid in increasing productivity (Oluremi, Iderawumi & Olatunde, 2021). Due to low buying power in local markets and lack of access to larger global markets, small-scale farmers struggle to sell their produce at market-related prices (Shapi, 2017).

Small-scale farmers have little to no marketing experience and thus find it difficult to compete for market share in a highly competitive environment; additionally, scales of economy lead to higher transaction and transport costs. This results in small-scale farmers selling their produce from the farm or to middlemen at prices below the market price (Mutero, et al., 2016). The majority of small-scale farmers produce for subsistence purposes and only a small portion of their produce reaches the market. The limited income restrain these farmers from adopting any labour-intensive agricultural practices requiring sophisticated equipment and further investment (Myeni, et al., 2019).

#### **1.6.4 Access to technology**

Small farms are synonymous with low-income, low-technology and family farms. These small-scale farmers lack capital to invest in scale-appropriate technology or infrastructure which is critical for efficient production. The result is that these farms operate at lower efficiencies and also incur higher labour costs (Pool, 2014). Small-scale farmers are characterised by simple, outdated technologies, low returns and labour-intensive farming systems. These farmers are often illiterate, with low-level technological skills, which can be seen as a serious obstacle to gaining access to formal institutions which disseminate technological knowledge (DAFF, 2012).

Inadequate access to agricultural technology negatively affects production. Access to technology can be given through various means, like training and workshops, on-farm demonstrations designed to encourage participation, fairs or farmers' days with diverse

exhibitions, community outreach programmes and yearly planning sessions. Most small-scale farmers know they lag in access to technology (Mutero, et al., 2016). Given access to the best available technology, small-scale farmers can improve both their production efficiency and quality of products (DAFF, 2012).

### **1.6.5 Access to land**

Access to secure land is necessary for adopting long-term sustainable agricultural practices. With restricted access to land, farming practices may lead to land degradation and decreased productivity due to soil erosion and leaching of nutrients (Mpandeli and Maponya, 2014). Communal land ownership often limits development and financial investment as a result of the uncertainties associated with it. Farmers who own their piece of land are usually more likely to invest in their farming practices (Myeni, et al., 2019).

Variables such as access to land and education result in increased productivity (Von Loeper, et al., 2016). The majority of small-scale farmers have a limited education background. A low level of education often has an indirect impact on the productivity of farms, as new technology and advancements require a certain level of education and training. Farmers with a higher level of education and training are more likely to adopt new agricultural practices (Myeni, et al., 2019).

### **1.7 Research methodology**

Research methodology involves all techniques used by a researcher to collect and analyse data (Leedy and Ormrod, 2015). When planning a research project, researchers are required to be cognisant of the strengths and weaknesses of the different methodologies available to ensure an informed decision is made on which method to select, to assess the appropriateness of each method, to know the limitations of each and to justify the choice, depending on the nature of the research. Research methods include techniques which are used for conducting research, data collection and the analysis tools required. The research methods can be classified as either qualitative or quantitative (Ragab and Arisha, 2017).

### **1.7.1 Qualitative research approach**

The study adopted a qualitative research methodology. A qualitative research approach enables the gathering of detailed information on a topic. It is used to initiate research to discover problems or opportunities people have in a specific situation (Ahmad, et al., 2019). The advantages of qualitative research are: firstly, it offers abundant information about real-life situations and challenges; secondly, it provides factual and descriptive data on the situation; thirdly, the expressions and experiences of participants are easy to understand even with little or no knowledge of the participants; finally, there is a close relationship between the participants and the researcher, making it easier for the participants to contribute valuable information to the research (Daniel, 2016).

The objective of the research report is firstly to determine the challenges of small-scale farmers in South Africa and secondly to use the information to build a conceptual framework to overcome these challenges. It is therefore required for the research to follow a qualitative approach.

### **1.7.2 Population and sample framework**

Within a target population, a sample should be carefully selected to represent the entire population (Cooper and Schindler, 2014). The sample size varies and is dependent on the complexity of the research and research questions (Saunders, Lewis & Thornhill, 2019).

The small-scale farmers on which the research is based can be considered a semi-heterogenous sample group, where the participants are individuals with various positions (diverse farm types; crops, livestock) but within the agricultural industry. With semi-heterogenous sampling, the mean sample size in past studies was found to be 35. This is considered to be the saturation point: new participants over and above 35 deliver little or no new information (Kindsiko and Poltimae, 2019). Saunders, et al. (2019) summarised the sample size requirement for a homogeneous group to be 4 to 12 participants and for a heterogenous group to be 12 to 30 (Saunders, 2012). For credible sample sizes in

qualitative research, an overall sample size of 15 to 60 is considered sufficient (Saunders and Townsend, 2016). The aim for this study was to interview 30 small-scale farmers.

The sampling technique used was non-random or purposive. Purposive sampling is the sampling technique most widely used in qualitative research. The sampling technique is used to identify and select participants who have in-depth knowledge and detailed information on the subject under investigation. This is subjective, and the participants need to meet the inclusion criteria (Palinkas, et al., 2015).

The inclusion criteria for the study were based on the definition of a small-scale farmer derived from literature in Chapter 2. In Table 1.1 below, the inclusion criteria are listed.

**Table 1.1** Inclusion criteria of small-scale farmers for the study

<b>Parameter</b>	<b>Inclusion criteria</b>
<b>Industry</b>	Agriculture
<b>Geographic location</b>	South Africa
<b>Farm size</b>	Up to 20 ha owned, communal land
<b>Farming activity</b>	Crop / Livestock
<b>Employment</b>	Labour consists of family or community members
<b>Annual income</b>	Less than R1 million
<b>Livestock herd size</b>	Fewer than 50 animals
<b>Marketing strategy</b>	Subsistence and marketing of excess production

### **1.7.3 Data collection method**

For the purposes of this study, face-to-face, in-depth interviews were used to collect data from the sample population identified. The in-depth interviews were guided by the research questions and were unstructured enough to allow discovery of new ideas and themes from the participants (Creswell, 2013). Through in-depth interviews, the researcher can ask the participants a series of questions to improve his or her insights or

to reword the questions for the participants to gain a better understanding and thus present more accurate data; it offers a better opportunity to engage with the participants. This enabled the researcher to deepen his understanding of the challenges of small-scale farmers in South Africa (Adams, 2015). The in-depth interviews were guided by a discussion guide. Refer to Appendix D for a sample of the discussion guide used. The questionnaire consisted of two parts:

### **Section A: Demographic information**

Participants were required to indicate their age, gender, marital status, number of children, education level and years of farming experience.

### **Section B: Farm business characteristics**

Participants were required to indicate the land tenure, farming activities, farm size, number of livestock, area under crops, marketing channel, challenges and opinions on solutions to these challenges.

## **1.7.4 Data analysis methods, techniques and instruments**

Data analysis gives meaning to the data collected, making it easy to interpret and use (De Vos, Strydom, Fouche & Delport, 2011). The aim is to describe the phenomenon in greater detail through comparing the data of several cases in terms of similarities or differences. Only thereafter a theory on the phenomenon can be developed from the empirical material (Graue, 2015). As mentioned in the preceding sections of the current chapter, this study focused on qualitative research data.

The data analysis technique used for the study was thematic content analysis, which is a descriptive presentation of qualitative data and identifies common themes within the data provided for analysis (Anderson, 2007). A thematic content analysis is further defined as a qualitative data analysis method to uncover a collection of themes, where diverse topics are addressed, including understanding experiences, perceptions, practices and other

underlying factors of the phenomena under study (Fugard and Potts, 2014). The data analysis can be concluded once recurring themes are consistently obtained from the participants, known as the saturation point. The saturation point in qualitative research is achieved when there is enough data to ensure all research questions can be answered (Palinkas, et al., 2015).

### **1.7.5 Qualitative/Quantitative data analysis**

Qualitative research can be defined as research providing insight and an understanding of the problem setting. This method is an unstructured and exploratory research method used to study complex phenomena, which cannot be done with quantitative research. The ideas and hypotheses resulting from qualitative research can later be used for quantitative research. Researchers use qualitative research to find out how people feel and think, gaining a better understanding of human behaviour, experiences, attitudes, motivation and intentions through observation and interpretation. The views of the participants receive more weight with qualitative research.

Quantitative research relies on methods of the natural sciences, where numerical data and hard facts are produced. The aim of the quantitative research method is to establish a cause-and-effect relationship between two variables using mathematics, computations and statistics. Due to the accuracy and precision, quantitative research is also known as empirical research. Data obtained through a qualitative research method can be divided into different categories and ranked or measured in terms of units of measurement. From the data, researchers can easily construct graphs and tables, making it easy to analyse the results (Ahmad, et al., 2019).

For the purposes of the research, a qualitative research approach was adopted to answer the research questions. A qualitative approach allowed for a better understanding of the current challenges of small-scale farmers. The information obtained was used to create a conceptual framework to mitigate the current challenges. Qualitative research can be defined as research providing insight and an understanding of the problem setting. This method is an unstructured and exploratory research method used to study complex



phenomena, which cannot be done with quantitative research. The ideas and hypotheses resulting from qualitative research can later be used for quantitative research. Researchers use qualitative research to find out how people feel and think, gaining a better understanding of human behaviour, experiences, attitudes, motivation and intentions through observation and interpretation. The views of the participants receive more weight with qualitative research.

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For the purposes of the research, a qualitative research approach was adopted to answer the research questions. A qualitative approach allowed for a better understanding of the current challenges of small-scale farmers. The information obtained was used to create a conceptual framework to mitigate the current challenges.

#### **1.7.6 Validity and reliability**

In quantitative research the techniques used to assess the trustworthiness of a study include internal validity and reliability. In qualitative research authenticity and credibility are used to ensure a study is trustworthy. The technique in qualitative research is referred to as member checking. Member checking is used to ensure the researcher is not biased during the collection and reporting of data. This involves returning to the sample used in the study and verifying if the final interpretation and presentation of the data matched with the inputs (Jackson, Drummond & Camara, 2007).

## **1.8 Ethical considerations**

The importance of ethics in any research is emphasised by Wallace and Sheldon (2015). Research ethics is a subject of concern in all academic research. During the study, care was taken to ensure that ethics guided the way in which the research was planned, designed, executed and conducted. In research, the ethical considerations guide the researcher and help protect the participants within the research from any violation of their rights, such as privacy, confidentiality and avoiding any harm. An ethical clearance certificate (2022\_SBL\_MBA\_049\_FA) was obtained from the UNISA SBL Ethics Committee for this study prior to data collection, showing that it complied with all ethical standards as set by the University. In accordance with the ethical clearance certificate, the researcher respected the rights of all participants in the study.

### **1.8.1 Informed consent**

The researcher ensured that consent was given by the participants before participation. Informed consent is deemed essential to protect human subjects in all studies involving people (Lorell, Mikita, Anderson, Hallinan & Forest, 2015). Informed consent means participants of a study are made aware of the aims of the specific study before consent is given. Within the study, all participants were informed about the aims and objectives before giving consent to continue. This was done to ensure that all participants were aware of their rights and duties for the duration of the study; any participant who was not comfortable with taking part had the opportunity to leave the study at any time.

### **1.8.2 Protection from harm**

Beneficence, which means protecting the participants of a study from any harm, refers to a Hippocratic oath ensuring that all participants in a study are free from harm (Fouka and Mantzorou, 2011). It is the responsibility of the researcher to take all necessary measures to avoid any harm or injury to participants in the study (Yip, Han & Sng, 2016). Harm can

constitute physical or mental discomfort. In line with the ethical clearance from the UNISA SBL Ethics Committee, the study did not expose any of the participants to any harmful situation. If any of the participants at any stage felt any discomfort in continuing, the participant was free to leave the group. During interviews all was done to preclude harmful situations.

### **1.8.3 Right to privacy**

All data collected during the study were kept confidential. It is vital to protect the participants' privacy during and after the study (Yip, et al., 2016). Invasion of a person's privacy occurs when any information collected during the interview is shared with any person unrelated to the study (Fouka and Mantzorou, 2011). During the course of the research, the researcher ensured that all information collected from the participants was kept safe and not publicised. No names, personal details or responses of any participants were revealed to any person unrelated to the study. Data and information collected during the study were kept safe and secure, with only the researcher having access, ensuring the participants' information and identity were protected. Participants were not required at any point to reveal personal or sensitive information if not comfortable.

## **1.9 Conclusion**

In this chapter the crucial role of agriculture was highlighted together with the role all farmers play in ensuring food security for the growing population. Small-scale farmers include a group of poor and marginalised individuals, farming on small pieces of land and struggling to realise the required yields, resulting in increased food insecurity. The challenges these farmers face require a framework to mitigate the obstructions to food security. From previous research, the ongoing challenges include access to information, access to capital, access to markets, access to technology and access to land. This relates to the research questions, which are: What challenges do small-scale farmers experience in South Africa and what framework can be developed to mitigate these

challenges? A qualitative research methodology was used, which entailed conducting semi-structured interviews with a purposive sample group of small-scale farmers. During the study, care was taken to ensure that ethics guided the way in which the research was planned, designed, executed and conducted. In Chapter 2, the literature available on small-scale farming will be reviewed.

## **Chapter 2**

### **Literature review**

The following section investigates the literature on the concepts under investigation in this study. The literature is reviewed in the context of the problem statement, research questions, research objectives and possible contribution of this study to the literature. Within this chapter, the definition of a small-scale farmer is determined, the concept of food security is discussed, sustainable agriculture and its role in small-scale farming is explored, common challenges experienced by small-scale farmers are identified and potential mitigation strategies are defined and explained.

#### **2.1 Small-scale farming definition**

South Africa's food and agricultural systems are continuously evolving with fewer and larger farms, while simultaneously, the retail sector is attaining market dominance and increasing its bargaining power. The small-scale farmers are the most vulnerable, as they are required to function ever more efficiently in the complex environment (Von Loeper, et al., 2016). It is the small-scale farmers who contribute to rural food security and combine to fight and eradicate poverty and hunger. The characteristics and nature of farming for small-scale farmers are diverse and important globally (Kamara, Conteh, Rhodes & Cooke, 2019). Defining small-scale farming will help protect them and add value to their continued existence.

The term small-scale farmers is often used interchangeably with family farms, subsistence farmers, smallholders and resource-poor, low-income, low-input and technology-poor farming (Nagayets, 2005). Traditional indicators used to define small-scale farms include farm size or livestock holding, gross sale of produce, quantity and type of labour used, ownership, subsistence or commercial production and production practices (Pool, 2014). There is a misconception that small-scale farms are simply a scaled-down model of large commercial farms: there are systematic differences in the intensities of input and output due to the farm size effect. Further to this, the systematic

relationship found between farm size and its productivity is due to market imperfections (Kirsten and Van Zyl, 1998).

In the absence of a single definition of small-scale farmers in the literature, they are usually grouped as a diverse middle-class family which is integrated into the economic market of subsistence farmers and constitutes roughly 75 percent of the world's poor (Nagayets, 2005). Based on scientific literature and country policies, small-scale farmers are defined in terms of four criteria, namely land size, amount of labour used, market orientation (own consumption or selling of produce for income) and economic size of the farming operation (FAO, 2018). Although these criteria are available, small-scale farmers are frequently defined only on the basis of the size of their farming operations (or number of livestock). The limitation of this is that it doesn't quantify the type of farming, quality of resources or differences across regions (Nagayets, 2005). When using the size of land to define small-scale farms, the labour arrangements, farm productivity and efficiencies are not taken into account. The labour is mostly provided by family members and community members with traditional knowledge (Mutero, et al., 2016).

In earlier research Kirsten and Van Zyl (1998) established that the size of land cannot serve as the only measure to define a small-scale farmer. Within the South African context, one hectare of peri-urban land under irrigation which is suitable for vegetables or herbs has a potential higher profit compared to 500 hectares of low-quality farmland in the Karoo. They suggest using turnover or net farm income to classify a small-scale farm. No farm should be termed viable on size alone, as more profitable farms are often seen as smaller than the viable size (Kirsten and Van Zyl, 1998). In more recent literature from developed countries, farms which are larger than 20 hectares occupy around 70 percent of land, while in the poor developing countries 70 percent of land consists of farms of fewer than five hectares (Lowder, Scoet & Raney, 2016).

Nagayets (2005) defines a small-scale farmer as a farmer who is confined to two hectares or less of either owned or rented land. This definition assumes that the farm serves as a principal source of income to the family and the family is the source of labour. Small-scale farms are often viewed as farms operated by families, with the labour mostly performed

by the family members. Small-scale farmers can generally be divided into two groups, firstly subsistence farmers and secondly the small-scale farmers aiming to market their produce (Mutero, et al., 2016a). Marketing of produce by the subsistence group achieves an annual turnover of less than R50,000, while the small-scale farmers are able to generate up R1 million in turnover per year (Nkadimeng, van Marle-Koster, Nengovhela & Makgahlela, 2022). Within South Africa, many small-scale farmers have viable farming operations which are as profitable and efficient as the large-scale commercial farms (Kirsten and Van Zyl, 1998).

The Food and Agriculture Organisation (FAO) proposed that small-scale farmers should be defined by combining two criteria. The first criteria is the physical size of the farming operation. The aforementioned can be expressed as the area of land being farmed (measured in hectares), as well as the number of livestock in production (measured in Tropical Livestock Units). Within South Africa, the number of cattle owned by small-scale farmers varies between one and 55, with an average of 10 cattle, according to Stroebel, et al. (2011). Sheep herds are much smaller, at between one and 30 animals (Gwiriri, Bennett, Mapiye & Burbi, 2021). The second criteria is the economic size of the farmer (measured by revenue). A small-scale farmer would fall within the bottom 40 percent of the national level for each of the measures (FAO, 2018).

From the above literature, small-scale farming can be defined as a farmer who operates on one to 20 ha of own or communal land for crop production, animal production or both with the use of family members or community members for labour. The production is not limited to own consumption; excess is sold for income, with an annual turnover bracket of less than R1 million. Livestock herds of small-scale farmers consist of one to 50 animals.

## **2.2 Food security**

Food security can be defined as “a situation that exists when all people at all times have physical, social, and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Pérez-Escamilla, 2017: 1). Food insecurity, on the other hand, refers to when food is not readily available,

leaving the community depleted of energy and nutrients and resulting in potential decreased productivity. When malnourished, people are often more susceptible to disease and are less efficient when working, which is why there is a strong link between food security and poverty (Nkembi, Herman, Mubeteneh & Nkengafac, 2021).

Food insecurity is a major challenge to African countries: the population growth exceeds the quality and quantity of food required to sustain the population (Hlophe-Ginindza and Mpandeli, 2021). Food insecurity is often caused by drought or extreme weather conditions, diseases or pests, military conflicts and political instability (Nkembi, et al., 2021). Food security is under threat across all developing regions of the world as a result of political systems, socioeconomic conditions, rapid population growth and extremely variable environmental conditions (droughts, floods, temperature) (Pawlak and Kołodziejczak, 2020). Food security initially centred around the supply of food and increase of production, but this has been extended to include three more dimensions, which are access, utilisation and stability (Galli, et al., 2020). Nkembi, et al. (2021) propose three pillars to food security, namely availability, where food is available and physically present in large quantities; accessibility, where food is available at any time; and utilisation, where sufficient quality and quantity of food is always available (Nkembi, et al., 2021).

Food security and poverty risk can be reduced within many African countries through growth and development of the agricultural sectors. Small-scale farmers dominate agriculture in Africa, with 80% of the 33 million farms small-scale farms (Hlophe-Ginindza and Mpandeli, 2021). Small-scale farmers contribute to food nutrition and security on a global level through increasing the availability of food; this counteracts global economic fluctuation as well as the global instability of supply. The role of small-scale farms in food security considers the relationship to the farm household; within these households the choice of consumption and economic decisions coexist. The farm ensures access to food for the household, while excess production can provide a source of income (Galli, et al., 2020). Small-scale farmers promote food security by increased food supply, employment opportunities for the local community, expanded income from selling surplus production and providing for household consumption (Oluwatayo, 2019).



The world's population is growing at a rapid rate and feeding all these people requires boosting production on small-scale farms (Oluwatayo, 2019). The poor population of Africa is dependent on agriculture, especially small-scale farms, as their primary source of livelihoods. Small-scale farmers are impacted by the increase in urbanisation, poor productivity and competition from larger commercial farms with more effective operations and thus decreased cost of production. This may potentially result in small-scale farms ceasing production (Hlophe-Ginindza and Mpandeli, 2021).

Access to food for poor households is negatively affected by the increased food demand, decreased productivity, rising food prices and inequalities of income (Pawlak and Kołodziejczak, 2020). Small-scale farms can accommodate more employees per hectare than large commercial farms; furthermore, these small-scale farmers may generate incomes that are 2-10 times larger than if they were working for wages (Oluwatayo, 2019). Small-scale farmers are often able to fulfil the demand for food not always met through the conventional supply chains. This additional food supply is often not the standardised products consumers are used to (Galli, et al., 2020).

Diversifying their cash crop production boosts the small-scale farmers' contribution to growth within the rural communities through food availability and added labour demand. This creates additional income, which can be used to buy household food or farm inputs to improve production (Oluwatayo, 2019). Within a small-scale farming community, the farms play an important role in economic refuge. Household members who have left the farm can eventually return if they lose employment in other sectors. This protects the stability of food security and the economy (Oluwatayo, 2019). The potential growth of small-scale farmers can assist in reducing food shortages through increased food supply, creating economic opportunities for the poor in rural areas and improving dietary diversity and the quality of the food consumed by all households. Small-scale farmers often keep their produce for own consumption; this offers protection against market volatility (Oluwatayo, 2019).

The SALSA project focused on the impact of small-scale farms on sustainable food production (supplying source of availability); providing of food and income to these

households (both access to food and utilisation of food for market); and increasing the diversity of production systems (ensuring food supply stability). It is typical for small-scale farmers to consume a considerable share of their production, thus diversity within their system may offer consumption diversity which will improve their dietary quality (Galli, et al., 2020). Through the increased food supply from small-scale farmers, consumers have increased choices at more reasonable prices, leading to a reduction in food price shocks. This will address food insecurity and hunger, especially in the rural regions (Oluwatayo, 2019). Boosting the productivity of small-scale farms is a practical and sustainable solution to address the growing food insecurity on a global level (Hlophe-Ginindza and Mpandeli, 2021).

### **2.3 Sustainable agriculture**

Sustainable agriculture involves farming using the principles of ecology, which is the relationship between organisms and the environment (Das, Mohanty, Sahu & Sarkar, 2020). The complete definition of sustainable agriculture is “integrated system of plant and animal production practices having a site specific application that will, over the long term: satisfy human food and fibre needs, enhance environmental quality, make efficient use of non-renewable resources and on-farm resources and integrate appropriate natural biological cycles and controls, sustain the economic viability of farm operations and enhance the quality of life for farmers and society as a whole” (Velten, et al., 2015: 2). In short, sustainable agriculture can be defined as the integration of plant and animal production practices, which are site specific and will last long term (Das, et al., 2020).

The challenge for agriculture is to double the current production over the next 25-50 years, in order to meet the projected increased demand based on the demographic and economic changes expected. While expanding production, it remains important that the food is nutritious, affordable, and produced in an environmentally and socially sustainable manner. The increased demand comes with increased challenges, including competition for water, competition for land from city expansions, land policy conflicts, labour challenges due to urbanisation, decreased biodiversity, air pollution and climate change

(Watson, 2008). Sustainable agriculture is an opportunity for small-scale farmers to boost the productivity of their farming operations through the sustainable use of available resources and limiting the effects of the various climatic conditions (Silici, Bias & Cavane, 2015).

A sustainable agricultural systems approach promotes self-sufficiency of farmers, maintains stable farming communities and favours ecological balance. Sustainable agriculture can therefore be seen as an alternative solution to all small-scale farmers with different farming methods based on variable market requirements (Shabangu, 2016). Achieving optimum agro-ecology requires farmers to follow environmental sustainability practices which will result in resource-efficient production. These practices include nutrient and pest management, improved water management, advanced classical plant and livestock breeding and use of remote information technology (Watson, 2008).

Sustainable agriculture can be achieved through implementing techniques which lead to increased production, meeting the demand of the growing population, while simultaneously conserving and protecting the environment with all its natural resources (Arora, 2018). Sustainable agriculture aims to maximise benefits like household food security, quality of life, development within rural areas, traditional wisdom and conservation of the environment. In many instances this is in complete contrast to large commercial farms, where the ultimate goal is generating profit (Shabangu, 2016).

Sustainable agricultural practices need to be appropriate and attractive to ensure adoption, especially by the younger generation, for the long term. The results should be tangible in the short term with decreased risk. The attractiveness will increase where farmers are able to overcome current challenges and find new market opportunities (Silici, et al., 2015). Small farms often benefit from higher yields per area, increased organic matter per area, expanded energy efficiency, healthier soils and more resilience to adverse climatic conditions. These benefits relate to the advanced agrobiodiversity of small-scale farms (Ebel, 2020).

Sustainability is seen in most African countries as environmental sustainability. Sustainable agriculture is an appropriate avenue for small-scale farmers to mitigate the

challenges they face. This enables these farmers to farm in an ecological balance through environmental conservation, resulting in decreased financial and technical constraints and improved motivation for their labour (Shabangu, 2016). Small-scale farmers are less dependent on commercial inputs, as they are able to utilise a wide variety of resources (manure or compost) which are produced on the farm or within close proximity, resulting in decreased input costs. Due to the increased diversity of inputs, these small-scale farmers are less susceptible to resource shortages and they stimulate agrobiodiversity on their farms. Small-scale farms operate with less mechanised equipment, thus consuming less fossil fuels, leading to increased economic and environmental sustainability (Ebel, 2020).

## **2.4 Challenges of small-scale farmers**

The section below identifies the most common challenges experienced by small-scale farmers globally based on various studies in the literature.

### **2.4.1 Access to information**

There is a direct relationship between access to relevant and effective information and agricultural development. Through access to relevant information, small-scale farmers can improve their production capacity and access formal remunerative markets. It is important for these small-scale farmers to combine their traditional and indigenous farming techniques, which have been passed on through many generations, with more recent scientific approaches. Mutero, et al. (2016) found that the majority of respondents received agricultural information infrequently. Authentic agricultural information is required by all farmers, whether large commercial or small-scale subsistence, to optimally use their farms and ensure sustainable agricultural practices (Rahman, et al., 2020). In any farming operation, production planning requires a specific demand and market. Information on market requirements and current and future pricing allows farmers, big or small, to make informed decisions, plan their production cycle and sell surpluses of

previous seasons. The lack of information allows the retail industry to set artificial prices which are static and don't respond to supply and demand (Oluremi, et al., 2021).

Farming is considered a knowledge-intensive industry, whether it is a large commercial farm or a small-scale farm. Farmers rarely have a single channel which serves as a comprehensive source for all the required information. Due to this, many farmers are unaware of the various agricultural practices available to sustain crop and animal productivity. These farmers then rely on their own indigenous knowledge, which they believe to be more accurate and simpler than formal education and training. This often results in farming practices that are not sustainable and low productivity (Myeni, et al., 2019). Farmers require information on the availability and use of agricultural inputs (seeds, fertilisers, equipment, subsidies and insecticides), market, bank credit facilities, joint transport availability, insurance policies and animal husbandry (Rahman, et al., 2020).

#### **2.4.2 Access to capital**

Farmers who are able to obtain credit have good yields of quality products, meeting the market standards. According to findings from Mpandeli and Maponya (2014), the majority of small-scale farmers find it difficult to access enough capital. The cash flow of small-scale farmers is continuously under pressure due to the long production cycles, high cost of inputs, seasonality of labour, transaction risks and climatic variability. Across all regions of Africa, small-scale farmers have similar acute constraints with poor market prices, high input costs, no access to capital and lack of knowledge, hampering food security (Shapi, 2017). Access to credit can help small-scale farmers overcome the financial constraints to adopting new and sustainable agricultural practices. The majority of small-scale farmers have never received credit for their crop production. Many small-scale farmers have no title deed for their land, making it difficult to apply for loans to invest on their farms due to lack of collateral (Myeni, et al., 2019). Owing to the land tenure of rural areas, small-scale farmers are unable to gain access to capital, which results in less capital available for land improvement (Shapi, 2017).

Both credit providers and insurance companies find it difficult to deal with small-scale farmers because of the high risk which stems from adverse weather conditions, moral hazards and anti-selection. Due to these risk factors, loans incur increased transactional costs. Many small-scale farmers fund their farming operations from personal savings (Mutero, et al., 2016). The peak labour demand during crop harvest requires small-scale subsistence farmers to substitute with family members, often leading to increased losses due to the quality of the harvest. Seasonal finance to cover input costs is scarce due to the large risks; the result is decreased production and thus increased poverty. Small-scale farmers use most of their production for subsistence rather than generating cash inflow, and they are unable to cover both their current season inputs and their input requirements for the next season (Shapi, 2017).

### **2.4.3 Access to markets**

Attaining food security, reducing poverty and achieving sustainable agriculture require a good market for all produce. Small-scale farmers have difficulty in reaching the formal markets. Most small-scale farmers rely on the marketing of their produce to earn a living (Oluremi, et al., 2021). Mpandeli and Maponya (2014) found that many small-scale farmers were able and willing to supply the formal markets, but access was limited. Marketing of produce is very important for any small-scale farmer, but it is often neglected within agricultural development. Government policies created with the goal of increasing food production don't take into consideration the distribution of the produce which can aid in increasing productivity (Oluremi, et al., 2021). Due to low buying power in local markets and lack of access to larger global markets, small-scale farmers struggle to sell their produce at market-related prices (Shapi, 2017).

The farmers that are able to secure access to these markets limit new entrants through charging them inflated prices to transport their produce to the markets. Another reason some of the small-scale farmers struggle to sell through the formal market is the strict requirement for high quality products. The farmers who are unable to sell in the competitive market are denied the opportunity to compete against commercial farmers.

These small-scale farmers are mostly dependent on the sale of their products as a source of income. Small-scale farmers often lose their produce during or after the production season due to inadequate storage facilities and inability to reach the markets timeously. Small-scale farmers cannot achieve their full market potential and their ability to compete in the commercial and high-value markets is reduced (Oluremi, et al., 2021).

Small-scale farmers often have little to no experience, thus they struggle to compete for market share in a highly competitive environment, and due to scales of economy they incur higher transaction and transport costs. This often results in these farmers selling their produce from the farm or to middlemen at prices below the current market price (Mutero, et al., 2016). The majority of small-scale farmers produce for subsistence and only a small portion of their produce reaches the market – culminating in limited income and the inability to adopt labour-intensive agricultural practices requiring sophisticated equipment and further investment (Myeni, et al., 2019).

Common marketing problems affecting small-scale farmers are poor infrastructure, long distance from the markets, lack of own transport (which increases the need for middlemen) and insufficient market information (Oluremi, et al., 2021). Marketing problems associated with small-scale farmers include low prices, increased tax, high transport costs, seasonal price variation, poor road networks in rural areas, variation of product quality and internal competition between farmers for the same market segment. A challenge not often considered is the import and export policies, which may not favour local producers (ACORD Uganda 2010).

#### **2.4.4 Access to technology**

Small-scale farms are synonymous with low-income, low-technology and family farms. These small-scale farmers lack capital to invest in scale-appropriate technology or infrastructure which is critical for efficient production. Thus these farmers not only farm at lower efficiencies, but also incur higher labour costs (Pool, 2014). Small-scale farmers are characterised by simple, outdated technologies, low returns and labour-intensive

farming systems. Small-scale farmers are often illiterate, with a low level of technological skills. This is seen as a serious obstacle to gaining access to formal institutions which disseminate technological knowledge (DAFF, 2012).

Due to lack of technology, small-scale farmers tend to switch between different production practices. This often leads to less profitable techniques which are not viable and the supply and demand for products are not always taken into consideration (Shapi, 2017). Inadequate access to agricultural technology negatively affects production. Technology can be embedded through channels like training and workshops, farm demonstrations designed to encourage participation, fairs or farmers' days with diverse exhibitions, community outreach programmes and yearly planning sessions. Most small-scale farmers know that they lag in access to technology (Mutero, et al., 2016). With access to the best available technology, small-scale farmers can improve both their production efficiencies and quality of products (DAFF, 2012).

Many small-scale farmers have a limited educational background. A low level of education often has an indirect impact on the productivity of farms, as new technology and advancements require a certain level of education and training. Farmers with a higher level of education and training are often more likely to adopt new agricultural practices (Myeni, et al., 2019). Small-scale farmers can increase their income through improved knowledge of the various farming production systems, through the honing of skills, through the use of available technology and through market access (ACORD Uganda 2010).

#### **2.4.5 Access to land**

Access to secure land is necessary for adopting long-term sustainable agricultural practices. With restricted access to land, farming practices may lead to land degradation and decreased productivity due to soil erosion and leaching of nutrients (Mpandeli and Maponya, 2014). Communal land ownership often limits development and financial investment as a result of the uncertainties which are associated with this land. Farmers



who own their piece of land are usually more likely to invest in their farming practices (Myeni, et al., 2019). Variables such as access to land and education result in increased productivity (Von Loeper, et al., 2016). Access to land augments small-scale farmers' ability to expand their current farming operations and reduces degradation of their current farming land (Shapi, 2017). Many small-scale farmers are tied to agricultural lands which are continually sub-divided within families, resulting in smaller production units which further restrict the potential income (Oluremi, et al., 2021).

## **2.5 Mitigating strategies**

Small-scale farms are much less productive than large commercial farms (Mathinya, et al., 2022). Increasing the productivity of an operation increases the risk associated with it. It is recommended that a feasibility study be conducted to determine the viability of the farming operation. In a feasibility study growth projections, capital requirements to expand the farming operation, new theoretical costs and the new projected sales are calculated (Lapere, 2010). Large commercial farms differ from small-scale farms, as their capital requirements and cost outlay will be much higher.

Mitigation strategies for small-scale farmers address three broad areas: firstly, the environment in which the operation takes place; secondly, the competitive advantage that can be realised from the available market; and lastly, the value chain adaptations required to serve the market (Silva Araújo, Keesman & Goddek, 2021). In the below section, each of the three areas are discussed with the factors that can impact each area.

### **2.5.1 Environmental strategies**

The environment in which small-scale farmers find themselves is influenced not only by the climate, but also by factors such as feasibility, desirability of produce and return on investment. This is important for both the small-scale farmers and potential investors. There is a global drive to boost farmers' efficiency and effectiveness (Laosillapacharoen, Tanaboriboon & Jermsittiparsert, 2019). Environmental factors increasingly impact small-

scale farmers, creating a need to enhance the adaptive capacity of these small-scale farmers. Reducing the vulnerability of small-scale farmers to environmental factors can alleviate poverty and move them from low-return subsistence farmers to high-return farmers. The challenge is to enable small-scale farmers to identify, manage and overcome market risks through promoting institutions and mechanisms. Research on strategies for adapting to the environment have predominantly focused on individuals or communities. The focus should shift to the dynamic processes and capabilities of small-scale farmers and how they as individual farmers interact with local and regional markets to enable them to adapt (Frank and Penrose Buckley, 2012).

Ogunkoya (2014) reports that the socio-economic and environmental factors, which include population growth, changing livestock market demands, urbanisation, economic development, climate change and technology, have influenced livestock numbers in South Africa. In sub-Saharan Africa the production and efficiency have decreased in the last three decades due to economic and environmental factors. Increasing productivity necessitates upgrading the skills of the farmers (Ogunkoya, 2014). A framework currently used to analyse and monitor the impact of the environment on any organisation is the PESTLE framework (Silva Araújo, et al., 2021).

#### **2.5.1.1 Political factors**

Political factors impacting small-scale farmers are often difficult to quantify. In certain countries political instability can be a factor, while in developing countries corruption is a major influence. The instability created through political factors can result in decreased motivation and an untrusting relationship between the stakeholders, risking the sustainability of the small-scale farmers (Silva Araújo, et al., 2021). Political factors may include tax policies, fiscal policies, import/export tariffs, political climate and strength of the institutions (banking system) (Thompson, Peteraf, Gamble & Strickland III, 2020).

South Africa has a unique political history which is entangled in the agricultural landscape. Through government policies a class of emerging farmers has developed which includes

beneficiaries of land reform programmes who have taken advantage of agricultural programmes. The land reform programmes receive substantial investments from the government and vary in their effectiveness due to the variety of models used (Mathinya, et al., 2022). The government's land reform policies aim to support and aid previously disadvantaged farmers. Land distribution forms part of the land reform policy and emerging farmers are identified as beneficiaries of new land (Zantsi, Greyling & Vink, 2019).

### **2.5.1.2 Economic factors**

The stability of the small-scale farmers' operations is influenced by the economic environment within which they operate and how willing customers are to pay the required prices for goods (Silva Araújo, et al., 2021). The economic climate may include specific factors such as high interest rates, exchange rates, high inflation rate, unemployment, countries' economic growth rate and per capita domestic product (Thompson, et al., 2020). To overcome these economic factors, small-scale farmers are required to have risk mitigating measures in place which may lead to higher operational costs that the end producer might not be willing to incur (Silva Araújo, et al., 2021).

Farmers typically know that the price of their output will vary and are seen as risk averse. Farmers, whether large commercial or small-scale, face several economic risks which include price risk, yield risk, input supply risk and other risks like health risk or machinery risk. The risks have a direct impact on the potential profit of farmers. An effective tool for minimising risk is diversification, which is especially important for small-scale farms. Diversification is where the farmer has several potential income streams, like having both crops and livestock (Bowman and Zilberman, 2013).

### **2.5.1.3 Sociocultural factors**

Small-scale farmers need to consider social aspects like the market and the workforce available in their surrounding community (Silva Araújo et al., 2021). Sociocultural factors include gender, age, household size, education level, farm size, type of farming, experience in farming, labour component, land tenure, training experience, access to information and distance from the market (Khoza, Senyolo, Mmbengwa & Soundy, 2019).

Working hours differ between countries, and in certain countries working weekends are not allowed or can be cost-prohibitive. Cost of labour will influence each operation, as labour-intensive systems will incur even higher costs to operate (Thompson, et al., 2020). Additionally, security may be required in certain areas or countries resulting in extra fixed expenses on a monthly basis. This calls for a full risk assessment to determine the effect on operational costs (Silva Araújo, et al., 2021).

### **2.5.1.4 Technological factors**

Technology requirements depend on the size and system which the small-scale farmer follows. Technology may not be available in all regions and will incur additional costs through importation and/or development (Silva Araújo, et al., 2021). Challenges for technological improvement are characterised by ineffective knowledge transfer, mismanagement of information and limited human capacity. New technological developments are often not scaled down from commercial operations to small-scale farming systems (Smidt and Jokonya, 2022).

Technological factors may include the pace at which new technology becomes available and the ease of access to current technologies (Thompson, et al., 2020). The maintenance and worker skills required to operate these new technological systems need to be considered; training and development of these incur additional costs (Silva Araújo, et al., 2021). Technological innovation is key to improving production capabilities during harvesting, transport and storage. In quality systems for small-scale farmers traceability

may be improved, potentially leading to increased market opportunities (Smidt and Jokonya, 2022).

#### **2.5.1.5 Legal factors**

The legal context will influence all stakeholders within the small-scale farming operation. The legal requirements of countries vary, and legal advisors may be required to deal with contracts, labour laws, government-related issues, handling of customer complaints and representing the operation where required (Silva Araújo, et al., 2021). These legal factors include the regulations which operations need to comply with, such as consumer law, labour law (minimum wage) and occupational health and safety (Thompson, et al., 2020).

With limited access to legal resources, small-scale farmers have difficulty to change negative market factors. This results in small-scale farmers being trapped in an operational cycle within a given market which may not be as rewarding (Khapayi and Celliers, 2016). The legal framework of the credit act in South Africa, including the Financial Services Board, FICA, banking industry, financial industry and insurance companies, limits its services to large commercial farming operations, neglecting the small-scale farmers (Von Loeper, Drimie & Blignaut, 2018).

#### **2.5.1.6 Environmental factors**

Small-scale farmers looking to venture into a new opportunity need to assess the weather and climate. Different farming operations vary in their environmental requirements, which may include temperature of plants and soil, rainfall, water shortage and fire risk (Thompson, et al., 2020). Reaching or aiming to reach all the requirements of a specific farming operation might incur additional costs if the incorrect area is selected (Silva Araújo, et al., 2021). The variation in climate globally is severely affecting agriculture. Scenarios linked to global warming result in decreased crop yields and crop quality

because of higher temperatures and a decline in rainfall, increasing food insecurity (Kom, Nethengwe, Mpandeli & Chikoore, 2022).

## **2.5.2 Marketing strategies**

Small-scale farmers have great difficulty with marketing their goods because of insufficient market facilities, scales and weighing systems and loading facilities for their livestock; inadequate market information; low market prices for their goods; cheap imports; and the certification requirements of large retail supermarkets (Khapayi and Celliers, 2016). To enter a new market and gain a competitive advantage, small-scale farmers need to select and focus on a specific product or market (Lapere, et al., 2010). A competitive edge within a market can be defined as “the ability of a company to have an edge over its rivals to attract customers while simultaneously coping with the other competitive forces”. This is important to take advantage of the greater marketplace and increase the long-term profitability of the small-scale farmers (Thompson, et al., 2020).

Within the farming environment, the market has current needs, price comparisons and customer expectations. To enter the market and maintain a competitive advantage small-scale farmers need to focus on the channel and clients, price and promotion, differentiation strategy and risk and substitutes (Silva Araújo, et al., 2021).

### **2.5.2.1 Channel and clients**

Marketing of produce is required to earn an income for small-scale farmers (Silva Araújo, et al., 2021). There are several channels through which small-scale farmers are currently selling their produce, like local traders, rural consumers and middlemen or brokers. The distribution channel is often dependent on the transport and transactional costs involved. Small-scale farmers don't often use middlemen or brokers due to the brokerage fee and mostly sell directly to their clients: they receive payment immediately and have no transportation costs and no taxation. These direct sales from the farmgate often result in

lower prices for the farmer (Cheteni and Mokhele 2019). Another reason for small-scale farmers preferring to sell directly to clients is their capacity challenge (Mutero, et al., 2016).

### **2.5.2.2 Price and promotion**

Achieving a price premium is possible but requires strong marketing strategies which may incur additional costs and failure when not implemented correctly. Without promotional efforts the price premium will not be reached (Silva Araújo, et al., 2021). Agricultural hubs which offer further processing of produce can add value to the farmers' products and improve selling prices (Mutero, et al., 2016). The price paid by supermarkets and wholesalers is influenced by consistent supply of quality and volume. Due to their higher volume of sales, large supermarkets and wholesalers are able to sell at lower prices, further decreasing the price for goods from small-scale farmers (Louw, Jordaan, Ndanga & Kirsten, 2008).

### **2.5.2.3 Differentiation**

Small-scale farmers can achieve differentiation to other similar products in the market through selling as local produce in niche markets (Silva Araújo, et al., 2021). Small-scale farmers can participate in high-value markets through product differentiation (Makeleni, Tournaire, Grwambi & Troskie, 2018). This requires the small-scale farmers to continuously innovate and to develop their supply chains. The growing importance of food safety and safety standards impels farmers to adapt and can be a differentiating strategy to improve prices across different markets (Louw, et al., 2008). The lack of education inhibits innovation and differentiation on small-scale farms, so raising the education level can further assist in differentiation (Khapayi and Celliers, 2016).

#### **2.5.2.4 Risk and substitutes**

Substitution of products depends on the price, availability and customer preference. It is important for small-scale farmers to understand this risk, and if managed well can lead to a strong competitive advantage (Silva Araújo, et al., 2021). The risk of marketing and specialised clients can be high, and many small-scale farmers may not be willing or able to take on these risks. When farmers focus on a specific product, it poses additional risk as the market may not be capable of handling high volumes of these goods (Lantz, 2019).

#### **2.5.3 Value chain**

Value is defined by Porter (1985) as what buyers are willing to pay a firm for the product they demand, and this can be measured through the total revenue. Every organisation performs a collection of activities, to sell a high-value product. The collection of activities is referred to as a value chain (Porter, 1985). These activities can be divided into primary activities and support activities, but for the purpose of mitigating strategies, they are not separated as all are deemed important.

##### **2.5.3.1 Inbound logistics**

These activities are associated with the receiving and storing of inputs required for the process (Porter, 1985). Key challenges of inbound logistics for small-scale farmers include purchasing power, lumpy inputs and seasonality. Small-scale farmers often buy small quantities which are more expensive (Phiwokuhle, 2020).

##### **2.5.3.2 Operations**

Activities in operations are associated with transforming the inputs into final product (Porter, 1985). This forms an integral part of small-scale farming, as accurate planning is



required for purchase inputs and when to sell produce, as well as cash flow (Silva Araújo, et al., 2021). Effective planning, systems management and support programmes are key to increasing the production and productivity of small-scale farms (Phiwokuhle, 2020).

### **2.5.3.3 Outbound logistics**

The primary activities in outbound logistics are associated with the collection of the final products and distribution of these to the buyers (Porter, 1985). Small-scale farmers have great difficulty in reaching markets as they don't have their own transport (Shange, 2014). Another issue for small-scale farmers is the lack of storage facilities on the farm and cold-chain trucks for delivery of fresh produce to markets (Greenberg, 2013).

### **2.5.3.4 Marketing and sales**

Marketing and sales activities are required to allow the buyer to understand what is available for buying from the company and to make this product attractive, so it stands out from the competitors (Porter, 1985). Effective sales and marketing can provide small-scale farmers with access to more markets (Silva Araújo, et al., 2021). The marketing infrastructure in South Africa is underdeveloped and this impedes small-scale farmers' access to formal markets. There is great potential for investment in marketing as this will improve the ability of small-scale farmers to reach more markets and integrate into the food value chain (Shange, 2014).

### **2.5.3.5 Services**

This activity is associated with enhancing the way the buyer uses the product or maintains the product (Porter, 1985). Small-scale farmers can improve value creation through building customer relationships and thus linking product supply with demand (Greenberg, 2013).

### **2.5.3.6 Procurement**

This is regarded as a support function for the purchasing of all inputs required in a firm's value chain (Porter, 1985). Small-scale farmers don't all have equal access to agricultural input and equipment (seeds, fertiliser, feed) and often use inferior quality inputs. The lack of quality inputs may result in decreased productivity (Shange, 2014). Additional assistance from local government through local procurement between a group of small-scale farmers would greatly decrease input costs (Greenberg, 2013).

### **2.5.3.7 Technological development**

This support function consists of a range of activities to enhance the product and the process (Porter, 1985). Technology is to a large extent underdeveloped within small-scale farming systems. Reliable technological systems can allow small-scale farmers to improve their production to consistently supply to the market's demand (Greenberg, 2013). Availability of technology on the farm is important for production and distribution of activities within the value chain (Shange, 2014).

### **2.5.3.8 Human resource management**

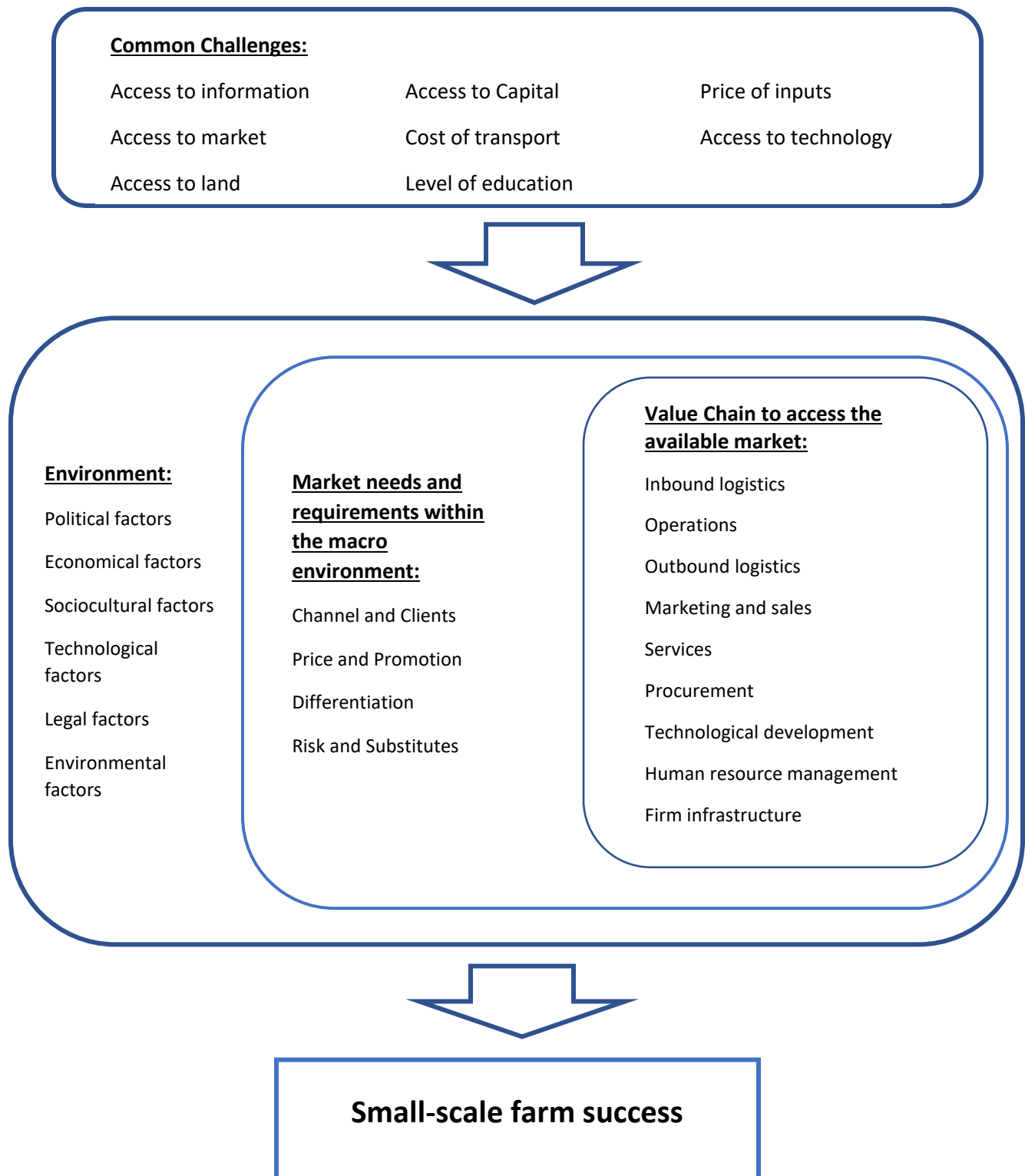
This refers to all activities related to the recruitment, selection, training, rewarding, retention and firing of employees. The aim is to attract the best talent, grow the talent through continuous training, retain these employees and have a good succession pipeline. Human resource management supports both the primary and secondary activities and adds value to the entire value chain of the business (Porter, 1985). Small-scale farms are known to be labour intensive with low levels of technical farming skills (Shange, 2014). Through training, incentive schemes and mentorship, productivity on small-scale farms can improve (Greenberg, 2013).

### **2.5.3.9 Firm infrastructure**

The firm infrastructure includes several activities which support the entire value chain, like general management, finance and government affairs (Porter, 1985). The activities can be carried out by a single individual or subcontracted to a third party (Silva Araújo, et al., 2021). Innovation on any farm, large or small, is driven by skilled labour and availability of knowledge (Shange, 2014).

### **2.5.4 Preliminary conceptual framework**

From the mitigation strategies described above, a preliminary conceptual framework was developed and is shown below in Figure 2.1.



**Figure 2.1** Preliminary conceptual framework

## **2.6 Conclusion**

Concepts derived from the literature review include the definition of a small-scale farm; food security; sustainable agriculture; and challenges of small-scale farmers with mitigating strategies. Different challenges were identified and a framework model for the mitigation of these challenges was constructed.

The chapter addressed the following objectives as set out in Chapter 1:

T<sub>01</sub> was achieved: the literature showed that small-scale farmers could not be defined only based on the size of their farm but that economic size should be part of the equation.

T<sub>02</sub> was realised: the concept of food security, as it pertains to this study, was defined and the importance of attaining food security was shown in the literature.

T<sub>03</sub> was accomplished: sustainable practices were defined and the value of sustainable agriculture explained.

The following chapter will share the procedure followed to obtain the empirical research objectives of the study.

## **Chapter 3**

### **Research methodology**

In this chapter, the research problem, research questions and research objectives to address the research problem are described. The aims and objectives of the study are set out, the research methodology is defined and data collection and procedures are outlined. The method of data analysis is identified while ethical considerations of this study are acknowledged.

#### **3.1 Introduction**

Based on the literature review, small-scale farmers face a number of challenges, which are not place specific. According to Mutero, et al. (2016), small-scale farmers are the key drivers of many economies in South Africa. The common challenges of small-scale farmers hinder their agricultural development (Mpandeli and Maponya, 2014). Developing mitigation strategies offers the opportunity for improving production and enhancing the livelihood of small-scale farmers.

#### **3.2 Problem statement**

Small-scale farmers contribute to the livelihood of many – including their surrounding community – and have the potential to contribute to the larger economy of South Africa. The challenges faced by small-scale farmers are unique compared to those of mainstream agriculture and are not well understood. A better understanding of these challenges of small-scale farmers could aid in improving economic development and ensuring sustainable food security.

### **3.3 Research questions**

The research questions for the study involve both theoretical and empirical questions, as follows:

TQ1: How is a small-scale farmer defined in the literature?

TQ2: How does food security in the literature apply to small-scale farmers?

TQ3: Why are sustainable agricultural practices important for small-scale farmers according to the literature?

EQ1: What are the current challenges of small-scale farmers in South Africa?

EQ2: How might a framework be constructed to address the challenges of small-scale farmers in South Africa?

### **3.4 Research objectives**

TO1: To define, and apply the definition of, a small-scale farmer in South Africa.

TO2: To define food security and how small-scale farmers can benefit.

TO3: To determine how sustainable practices can benefit small-scale farmers.

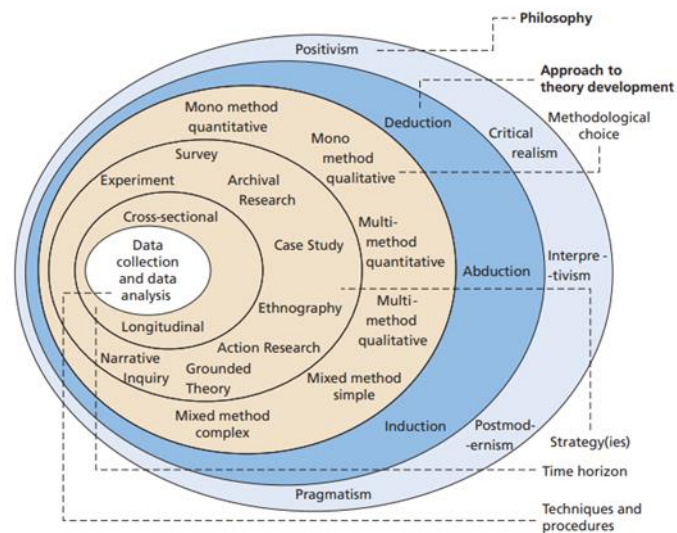
EO1: To explore the challenges small-scale farmers in South Africa currently face.

EO2: To construct a conceptual framework to address the challenges of small-scale farmers in South Africa.

### **3.5 Research methodology**

Research can be defined as the approach of researchers to find out new things through a systematic process to increase their knowledge (Saunders, Lewis & Thornhill, 2009).

Research methodology involves the procedures and techniques used to collect and analyse data (Leedy and Ormrod, 2015). For the purpose of this research the research onion, as depicted below in Figure 1, is used to identify the appropriate research approach (Saunders, et al., 2019). The research onion illustrates the choices, strategies and steps to follow during research.



**Figure 3.1** The research onion (Saunders, et al., 2019)

Working from the outside, the first layer is the research philosophy and refers to the system of beliefs and assumptions about the development of knowledge (Saunders, et al., 2019). The research philosophy used for this research was pragmatism. The concept of pragmatism entails research which starts with a problem and aims to provide a practical solution for future practice. This is aligned with the objectives of the research, which involve identifying the challenges small-scale farmers face and providing mitigation strategies to overcome these challenges.

The second layer of the onion entails the approach to theory development. For this research the abductive approach was used. With an abductive approach, the research starts through the collection of data to explore a phenomenon, identify themes and explain patterns to either generate new theory or modify existing theory, and can be tested through additional data collection (Saunders, et al., 2019). The theory behind mitigation



strategies will be adapted through the current research to construct a conceptual framework for small-scale farmers.

The next layer of the onion is the methodological choice. Research methodologies generally are quantitative, qualitative or mixed (Borrego, Douglas & Amelink, 2009). This research adopted a qualitative research approach. A qualitative research approach enables the gathering of detailed information on a topic. It is used to initiate research to discover problems or opportunities people have in a specific situation (Ahmad, et al., 2019). Gathering data for this study involved in-depth interviews allowing the research questions to be answered.

The fourth layer of the onion is the strategy(ies) layer. A research strategy is the plan of how a researcher will conduct research to answer the research questions (Saunders, et al., 2019). In this research, an exploratory research strategy was used. According to Creswell and Creswell (2018), an exploratory research strategy is used when the researcher builds an understanding through the voice of the participants. An exploratory research study is valuable in asking open-ended questions to gain insight into a specific topic of interest and is used to understand issues, problems or phenomena of which the precise nature is not known (Saunders, et al., 2019). This is aligned with the research question of determining what challenges small-scale farmers currently experience.

Following the strategy layer is the time horizons layer. The time horizon is the perspective of whether the study is based on a snapshot of an occurrence or studies an ongoing occurrence (Kulatunga, Amaratunga & Haigh, 2007). This snapshot of an occurrence is called a cross-sectional study and is usually done when there is a time constraint to the research (Saunders, et al., 2019). For this study, a cross-sectional time horizon was used. The interviews were conducted looking at the challenges of small-scale farmers at the specific point of time of the interview.

The last layer of the onion is the techniques and procedures layer (Saunders, et al., 2019). This study followed in-depth interviews. An in-depth interview is used to explore a general area of interest in-depth. The researcher aims to identify emerging themes from participants and seeks to understand the reality through using open-ended questions. These open-ended questions allow participants to define and describe current situations.

The in-depth interviews were aligned with the research questions to obtain information on the current challenges of small-scale farmers and their perspectives on potential mitigation strategies.

### **3.6 Qualitative research approach**

Qualitative research involves the systematic collection, analysis and interpretation of narrative data to obtain an in-depth understanding of a certain phenomenon. The researcher starts out by collecting data and then derives an explanation from these data (Saunders, et al., 2009). Qualitative research looks at different qualities or characteristics which can't be measured numerically in quantitative units or variables (Leedy and Ormrod, 2015). The use of qualitative research is appropriate where reasons for a problem have been found, which is the why, so a solution can be crafted, the how. Qualitative research typically focuses on phenomena within natural settings and involves the capturing and studying of their complexities (Leedy and Ormrod, 2015). Qualitative research provides insight into and understanding of the problem setting. This method is an unstructured and exploratory research method which is used to study complex phenomena, which cannot be done with quantitative research. Researchers use qualitative research to find out how people feel and think, gaining a better understanding of human behaviour, experiences, attitudes, motivation and intentions through observation and interpretation. The view of the participants receives more weight with qualitative research (Ahmad, et al., 2019).

For the purpose of this research a qualitative research approach was adopted to answer the research questions. A qualitative approach allowed for a better understanding of the current challenges of small-scale farmers. This information was then used to create a conceptual framework to mitigate the challenges.

### **3.7 Population and sample framework**

The population contains the whole set of cases or group members (Saunders, et al., 2009). Similarly, Leedy and Ormrod (2015) define a population as the entire group from which the researcher aims to draw a conclusion. A sample is a smaller group selected from the population, which is to be observed and included in the research. Results obtained from the sample group are generalised to the population. The sample size is always smaller than the population (Leedy and Ormrod, 2015). Within a target population, a sample should be carefully selected to represent the entire population (Cooper and Schindler, 2014). The sample size varies and depends on the complexity of the research and research questions (Saunders, et al., 2019).

The agricultural sector in South Africa is dualistic in nature, with an advanced commercial farming sector and a less developed small-scale farming sector. Close to 95 percent of the agricultural output in South Africa is produced by the large-scale commercial farms, while the small-scale farms make up the balance of agricultural output (Mutero, et al., 2016). In the last Agricultural Census completed by Stats SA (2020), the agricultural sector consisted of 40,122 large-scale farms and more than 300,000 small-scale farms. However, the General Household survey from 2019 reported a further 2.3 million households in South Africa engaging in subsistence-oriented agricultural activities. This is in addition to the 300,000 small-scale farms (Mathinya, Franke, van de Ven & Giller, 2022; Stats SA, 2020).

The small-scale farmers on which the research is based can be considered a semi-heterogenous sample group, where the participants are individuals with various positions (various farm types; crops, livestock) but within the same industry (agriculture). With semi-heterogenous sampling, the mean sample size in past studies was found to be 35. This is considered to be the saturation point, where new participants over and above 35 deliver little or no new information (Kindsiko and Poltimae, 2019). Saunders, et al. (2019) set the sample size requirement for a homogenous group at four to 12 participants and for a heterogenous group at 12 to 30 participants (Saunders, 2012). For credible sample sizes in qualitative research, an overall sample size of 15 to 60 is considered sufficient

(Saunders and Townsend, 2016). The aim for this study was to interview 30 small-scale farmers.

The sampling technique used for this study was non-random or purposive. Purposive sampling is the sampling technique most widely used in qualitative research; it seeks to identify and select participants who have in-depth knowledge and detailed information on the subject under investigation. This is subjective, and the participants need to meet the inclusion criteria (Palinkas, et al., 2015).

The inclusion criteria for this study were based on the definition of small-scale farming as discussed in Chapter 2. Establishing inclusion and exclusion criteria is a requirement for all research studies. The inclusion criteria can be defined as the key features of the target population from which the researcher aims to answer the research questions. In contrast, the exclusion criteria are defined as the features of participants who meet the inclusion criteria but have characteristics which might risk an unfavourable outcome (Patino and Ferreira, 2018). The inclusion and exclusion criteria are listed in Table 3.1 below.

**Table 3.1** Inclusion and exclusion criteria used for the study

<b>Parameter</b>	<b>Inclusion criteria</b>	<b>Exclusion criteria</b>
<b>Industry</b>	Agriculture	Any industry outside agriculture
<b>Geographic location</b>	South Africa	Any other country
<b>Farm size</b>	Up to 20 ha owned, communal land	Larger than 20 ha
<b>Farming activity</b>	Crop / Livestock	Horticulture, aquaculture
<b>Employment</b>	Labour consists of family or community members	Labour from outside community or province
<b>Annual income</b>	Less than R1 million	Above R1 million
<b>Livestock herd size</b>	Fewer than 50 animals	51 animals and more
<b>Marketing strategy</b>	Subsistence and marketing of excess production	All produce is sold to the market

### **3.8 Data collection method**

For the purpose of this study, face-to-face, in-depth interviews were used to collect data from the sample population identified. The in-depth interviews were guided by the research questions and were unstructured enough to allow discovery of new ideas and themes from the participants (Creswell, 2013). Through in-depth interviews the researcher can ask the participants a series of questions to gain a deeper understanding or rephrase the questions for the participants to better grasp their meaning, thus generating more accurate data and augmenting the opportunity to engage with the participants. This increased the researcher's insight into the challenges of small-scale farmers in South Africa (Adams, 2015). The in-depth interviews were guided by a discussion guide. Refer to Appendix D for a sample of the discussion guide used.

The discussion guide consisted of two parts:

#### **Section A: Demographic information**

Participants were required to indicate their age, gender, years of farming experience and place of residence (on or off farm).

#### **Section B: Farm business characteristics**

Participants were required to indicate the province and area of farming, size of the farm, farming activities, current marketing channel, land tenure, profitability, challenges faced and opinion on solutions to these challenges.

### **3.9 Data analysis**

Data analysis gives meaning to the data collected, making it easy to interpret and use (De Vos, et al., 2011). The process of analysing qualitative data involves the description, classification and interconnection of phenomena within the researcher's concepts. The aim is to describe the phenomenon in greater detail through comparing the data of several cases to establish what they have in common or where they differ. Only thereafter a theory

on the phenomena can be developed from the empirical material (Graue, 2015). As mentioned in the preceding sections of this chapter, the study focused on qualitative research data.

The data analysis technique used for this study was Thematic Content Analysis (TCA). This is a descriptive presentation of qualitative data, which identifies common themes within the data provided for analysis (Anderson, 2007). A TCA is further defined as a qualitative data analysis method to uncover a collection of themes, where diverse topics are addressed, including understanding experiences, perceptions, practices and other underlying factors of the phenomena under study (Fugard and Potts, 2014). To ensure data are successfully analysed, it is important to go through the data several times using four steps (Leedy and Ormrod, 2015). The first step is to organise the data through using a filing system or computer database, thus breaking larger data units into smaller, understandable data. The second step is to peruse the entire data set several times to get an overall sense of what the data means. The third is to start finding meanings within the data through identifying and classifying the data into categories or themes. The last step is to integrate and summarise the data derived into a meaningful report for readers.

The data analysis can be concluded once recurring themes are consistently obtained from the participants. This is known as the saturation point. The saturation point in qualitative research is achieved when there is enough data to ensure all research questions can be answered (Palinkas, et al., 2015). The data collected were analysed to identify and report all common themes found.

### **3.10 Trustworthiness**

Within qualitative research, trustworthiness and credibility are important (Maree, 2016). The three approaches used to ensure trustworthiness and credibility of data collected during this study are reflexivity, inter-rater reliability and having access to all participants. The first approach, reflexivity, is the measure researchers take to actively identify any possible personal, political, social or philosophical biases which may influence their ability to collect and interpret all data (Leedy and Ormrod, 2015). Within this research, the

researcher took the necessary precautions and guarded his behaviour to reduce the possibility of any influence which might affect the quality of data.

Inter-rater reliability, the second approach, aims to establish consistent findings from the analysis conducted by two or more researchers. When data analysis is conducted by two or more people, the result is of better quality as the findings from a single person's view has the potential to be influenced by another person's view (Armstrong, Gosling, Weinman & Marteau, 1997). The inter-rater reliability can be calculated as a percentage agreement through the use of the following formula:

$$PA = \frac{A}{n} \times 100$$

Where:

*PA* – percentage agreement

*A* – number of agreements between two or more people

*n* – number of segments

According to Saunders, et al. (2009), an inter-rater reliability score of 80 percent or higher is considered as acceptable. Inter-rater reliability was ensured in this study through involving the supervisor in performing quality assurance throughout the study.

The last approach to ensure trustworthiness and credibility of data collected is the ability to return to the participants to get clarity on any information related to the data collected. It is therefore important to have access to all participants after the initial interviews.

Trustworthiness can be described as whether research data are believable or not. To ensure trustworthiness in a qualitative research study, four benchmarks need to be followed, namely credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985).

### **3.10.1 Credibility**

This deals with the concerns about the coherence of the research findings to reality and how the researcher can ensure the research findings are believable (Maree, 2016). The representation of research results needs to actually match what was intended by the participant (Saunders, et al., 2019). The researcher ensured credibility of the research through obtaining informed consent and engagement from the participants with complete audit trails.

### **3.10.2 Transferability**

This is the extent to which readers of the research report can connect their own experience with certain elements of the study (Maree, 2016). The researcher allows the reader to judge the transferability of the current study, through describing the research questions, design, context, findings and interpretations (Saunders, et al., 2019). Although this study focused on small-scale farmers, the resultant mitigation strategies may be applied to larger commercial farms as well.

### **3.10.3 Dependability**

There is a close relationship between credibility and dependability, therefore achieving credibility as discussed in the section above will ensure dependability is achieved (Maree, 2016). All research results need to be recorded to allow for a reliable/dependable account of results to be understood and evaluated by others (Saunders, et al., 2019). Data from the study were stored electronically, allowing comparison of results even after completion of the study.

### **3.10.4 Confirmability**

Confirmability describes the objectivity of the data collected (Connelly, 2016). This is the extent to which research findings of the study are shaped by the participants and not



through the researcher's bias, interest or motivation (Maree, 2016). The data were collected from participants with nothing to gain or lose from their inputs, thus the data were confirmable and objective.

### **3.11 Ethical considerations**

The importance of ethics in any research is emphasised by Wallace and Sheldon (2015). Research ethics is a subject of concern in all academic research. During this study, care was taken to ensure that ethics guided the way in which the research was planned, designed, executed and conducted. In research, the ethical considerations guide the researcher and help protect the participants within the research from any violation of their rights, such as privacy, confidentiality and avoiding any harm. An ethical clearance certificate (2022\_SBL\_MBA\_049\_FA) was obtained from the UNISA SBL Ethics Committee for this study prior to data collection, showing that it complied with all ethical standards as set by the University. In accordance with this, the researcher respected the rights of all participants in this study.

#### **3.11.1 Informed consent**

The researcher in this study obtained the consent of the participants before they participated in the study. Informed consent is deemed the cornerstone to protect human subjects in all studies involving people (Lorell, et al., 2015). Informed consent means that participants of a study are made aware of the aims of the specific study before they consent to participate. Within this study, all participants were informed about the aims and objectives of the study before they gave their consent to continue. This was done to ensure that all participants were aware of their rights and duties for the duration of the study. Any participant who was not comfortable with participating had the opportunity to leave the study at any time.

### **3.11.2 Protection from harm**

Beneficence, which means protecting the participants of a study from any harm, refers to a Hippocratic oath that ensures that all participants in a study are free of harm (Fouka and Mantzorou, 2011). It is the responsibility of the researcher to take all necessary measures to avoid any harm or injury to participants in the study (Yip, et al., 2016). The possible harm can be physical or mental discomfort. In accordance with the ethical clearance from the UNISA SBL Ethics Committee, this study did not expose any of the participants to any harmful situation. If any of the participants at any stage felt any discomfort in continuing, they were free to leave the interview. During interviews all was done to ensure there were no harmful situations.

### **3.11.3 Right to privacy**

All data collected during this study were kept confidential. It is vital that participants' privacy is protected during and after the study (Yip, et al., 2016). Invasion of a person's privacy occurs when any information collected during the interview is shared with any person unrelated to the study (Fouka and Mantzorou, 2011). During the course of this research, the researcher ensured that all information collected from the participants was kept safe and not publicised. Any identifiable information about participants was removed when reporting the results of this study. Data and information collected during this study were kept safe and secure, with only the researcher having access, ensuring that the participants' information and identity were protected. Participants were not required, at any point, to reveal personal or sensitive information if they felt uncomfortable.

## **3.12 Conclusion**

In this chapter the research methodology of the study was outlined. The problem statement, research questions and research objectives were revisited. The research methodology, research approach, population and sampling framework were explored. Thereafter, the data collection method, data analysis method and trustworthiness were

discussed. Finally, the ethical considerations related to this study were addressed. Chapter 4, which follows, will contain the results as set out in the above methodology.

## Chapter 4

### Research results

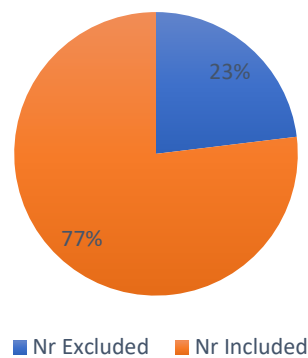
#### 4.1 Introduction

The purpose of this chapter is to present the research results obtained – the demographic information, farm business information, current challenges experienced and mitigating strategies for small-scale farmers. In-depth interviews were used to collect the information from the participants and the results are presented below. The aim is to address the empirical objectives which include exploring farm success, identifying current challenges experienced and determining possible mitigating strategies for these small-scale farmers.

#### 4.2 Interview information

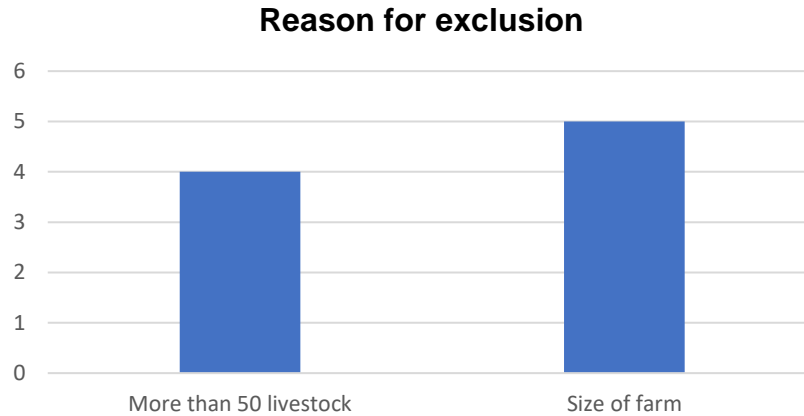
During the research, in-depth interviews were conducted with 39 participants. The inclusion criteria for the research were based on the definition for a small-scale farmer derived in Chapter 2 and depicted in Table 3.1 of Chapter 3. Of the 39 participants, only 30 participants met the inclusion criteria, as shown in Figure 4.1 below.

**Participants interviewed**



**Figure 4.1** Number of participants interviewed

Nine participants were excluded based on the reasons shown in Figure 4.2 below: four were excluded due to farming with more than 50 animals and five were excluded because they farmed on land larger than 20 hectares.



**Figure 4.2** Reasons for excluding participants

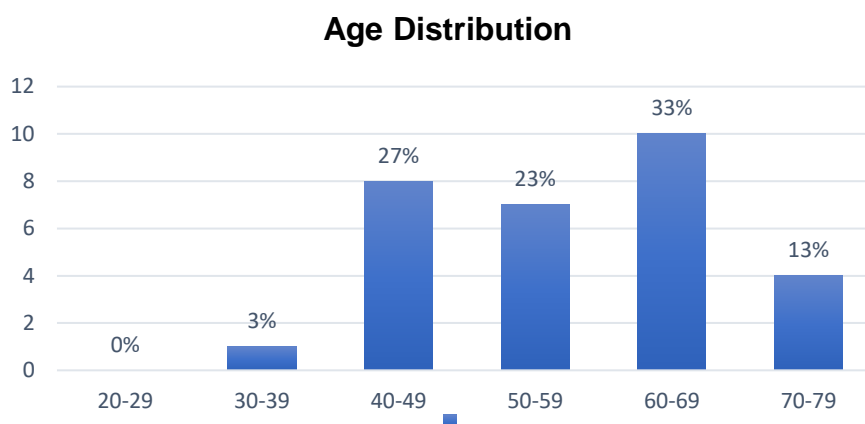
### 4.3 Demographic information

Demographic information of households is important to understand the impact of these factors on the productivity of small-scale farmers from a household level (Myeni, Moeletsi, Thavhana, Randela & Mokoena, 2019). The demographic information creates an understanding of participants in the research. Most studies include demographic variables like age, gender, marital status, number of children and education level (Shabangu, 2016). In the section below, the demographic information obtained from the study is discussed.

#### 4.3.1 Age distribution

Age is a significant characteristic in understanding the participants' views on problems or challenges. The maturity level of individuals is often indicated through age (Shabangu, 2016). Participants were grouped into six categories from 20 years to older than 70 years. The results revealed that 13% were older than 70 years, while 97% of participants were older than 40 years. The results of age distribution are similar to the results Shabangu (2016) obtained from small-scale farmers in Swaziland, where 65% of the participants were older than 36 years. The study by Myeni, et al. (2019) in the Free State had only 8%

of the participants below 35 years and Beharielal, et al. (2022) had 10% of participants younger than 45 years.



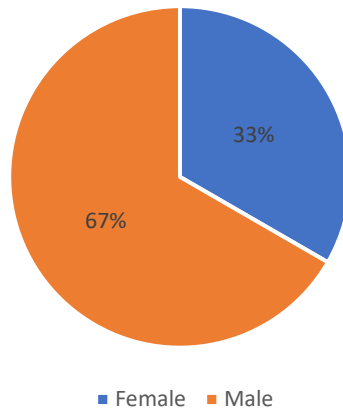
**Figure 4.3** Age distribution

The age distribution shows youth are less involved in farming operations. This may be attributed to the migration of youth to urban areas in the search for better opportunities (Rahman, Ara & Khan, 2020; Myeni, et al., 2019). The younger farmers are more likely to adopt new technologies, while older farmers rely on the indigenous knowledge of farming.

#### **4.3.2 Gender distribution**

From the 30 participants in the study, 10 were female and 20 were male, as shown below in Figure 4.4. However, these results do not coincide with the results of Mutero, et al. (2016), Shabangu (2016), Oluremi, et al. (2021) and Beharielal, et al. (2022), where most participants were females. Agricultural studies focusing on small-scale farmers have found female farmers to represent the majority of farmers. The higher participation rate of females is indicative of being more knowledgeable regarding farming practices (Beharielal, et al., 2022). Female farmers have broadened their involvement in agriculture to ensure household survival and are responding to new economic opportunities in agriculture (Shabangu, 2016).

### Gender distribution

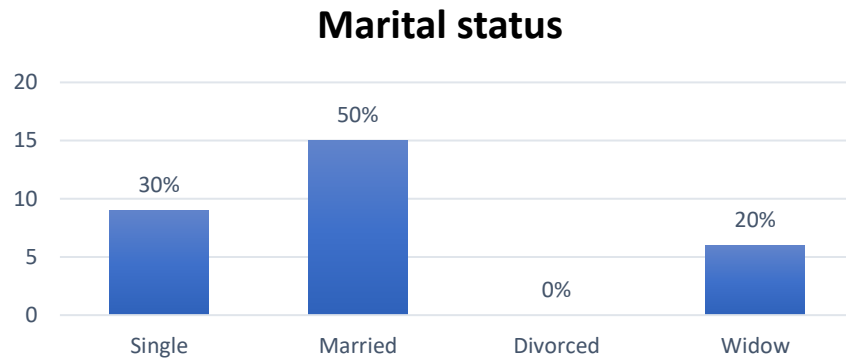


**Figure 4.4** Gender distribution

The results do coincide with results from Shapi (2017) and Myeni, et al. (2019), where males were in the majority in the studies on small-scale farmers. The higher participation rate from men could be the result of older men migrating out of urban areas to their rural homelands. Older men may be using farming as a way to supplement their retirement packages.

#### 4.3.3 Marital status

The use of marital status assists in determining the predominant category involved in small-scale agriculture. The results, in Figure 4.5 below, show that nine of the participants were single, 15 participants were married and six participants were widows, with no divorced participants. The research of Shabangu (2016) concluded that youth had the view that farming was only for older people and married couples, and thus the youth mostly migrated to urban areas seeking employment. It has been proposed that young single farmers should be attracted through establishing formal markets where competitive prices are paid (Shabangu, 2016).



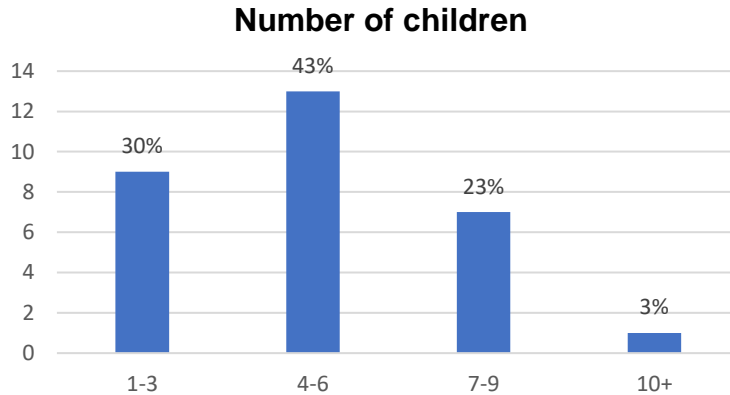
**Figure 4.5** Marital status

Kulyakwave, et al. (2019) found that marital status influenced production – married farmers obtained higher productivity with lower costs as they were able to share the workload and reduce labour. Married farmers have the common goal of taking care of their farms and sharing knowledge and capital, which influences productivity (Kulyakwave, et al., 2019). This was confirmed by Mwangi, et al. (2015), who found that married farmers shared duties, with one dealing with production activities and the other handling marketing aspects (Mwangi, et al., 2015). When married farmers share the same sentiments, small-scale farmers can ensure food security on an economically viable farm.

#### 4.3.4 Number of children

The number of children impacts the budget of small-scale farmers through outlays on food, school fees and other general amenities related to providing for the children. The financial requirements increase with the number of children. The results of this research are shown in Figure 4.6 below; nine of the participants had between one and three children, 13 participants had between four and six children, seven participants had between seven and nine children and one participant had 13 children. While growing, children perform farming duties, which is cheaper than outsourced labour. Introducing children to farming from a young age allows their skills to develop, affords them valuable experience and may attract them to farming as a career (Shabangu, 2016).



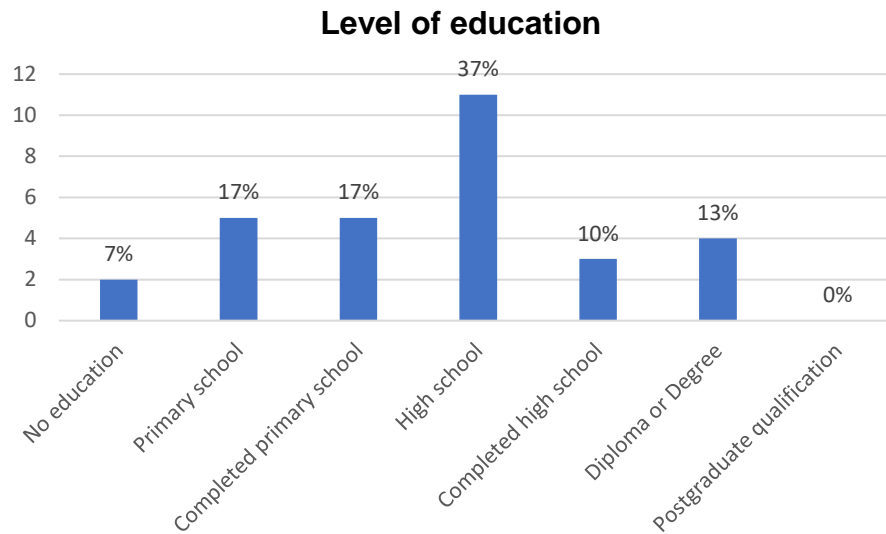


**Figure 4.6** Number of children

When funds are not available for expenses related to their children, the small-scale farmers often use money intended for farm inputs; this leads to decreased productivity of farmland (Shabangu, 2016). An increase in household size forces small-scale farmers to use their own produce to meet the household requirement, resulting in less marketable surplus. The surplus products which are sold pay for non-food products for the household (Mkuna and Wale, 2022).

#### 4.3.5 Level of education

The education level for most participants was found to be low. Of the 30 participants, only four had either a diploma or degree, three had completed matric, 11 had dropped out during high school, five had only completed primary school, five had dropped out of primary school and two had no education. In South Africa the education level is characterised by large commercial farmers having higher education levels, including tertiary education. The small-scale farmers, often resource poor, have limited access to education (Beharielal, et al., 2022). Small-scale famers have a meagre income, resulting in restricted spending capacity. Research by Beharielal, et al. (2022) found that the children from low-earning small-scale farms were more likely not to complete school and to drop out at various levels as funds were exhausted (Beharielal, et al., 2022).



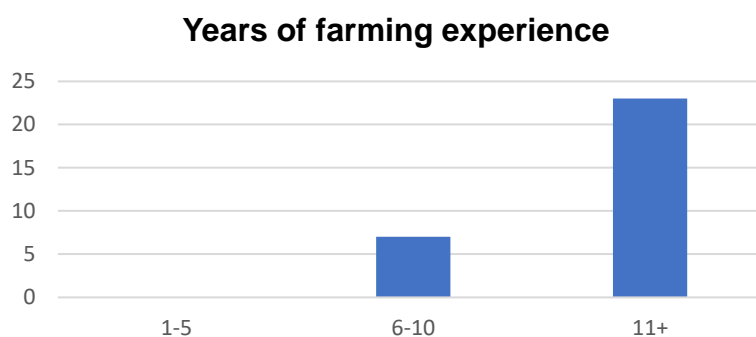
**Figure 4.7** Level of education

According to the results of Shabangu (2016), education level influences the decision-making ability and adoption of new improved practices within traditional agriculture. The low education level impacts the productivity of small-scale farmers as advanced education levels strengthen thinking capacity, enabling farmers to plan well, adapt to new challenges, improve management of risk and adopt new technologies. Education is a powerful human capacity tool and influences the small-scale farmers' ability to adopt new agricultural technologies. The educational background determines the readiness of a small-scale farmer to accept and properly apply new technologies, and with a low education level the likelihood of rejection of new technologies and innovation is high. The result is often seen in a lower production output (Nkonki-Mandleni, Manenzhe & Omotayo, 2022). Similarly, Mkuna and Wale (2022) found that farm performance increased with an increased education level.

#### **4.3.6 Farming experience**

Years of experience in farming involves a comprehensive knowledge and understanding of the agricultural sector and includes approaches to planning for maximum yields, working with machinery, general farm administration and market opportunities (Shabangu, 2016). Figure 4.8 shows that all participants had several years of experience,

with seven participants having between six and 10 years' experience and 23 participants having 11 years' experience or more.



**Figure 4.8** Years of farming experience

The results give the impression that the participants had vast experience in farming. However, it seems their experience within the agricultural sector was limited. Experience in farming is usually reflective of a farmer's knowledge, skill and marketing abilities (Mkuna and Wale, 2022).

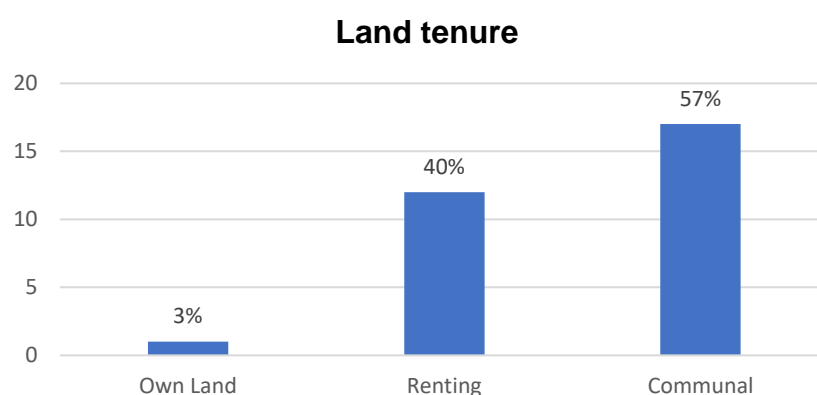
#### **4.4 Farm business characteristics**

The aim is to use the information from the interviews to improve household food security and farm productivity for small-scale farmers (Nkonki-Mandleni, et al., 2022). The characteristics and business information can be used to determine how farm size, finance structure and other aspects influence farm success and profitability (Barry, Escalante & Bard, 2001). In the next section, farm business characteristics obtained through the interviews with small-scale farmers are discussed.

##### **4.4.1 Land tenure**

Land tenure is seen as a condition for the development, growth and commercialisation of small-scale farmers (Shabangu, 2016). Figure 4.9 shows that only one participant owned

his/her own land, 12 participants were renting their farms and 17 participants were farming on communal land. These findings are consistent with the research of Shabangu (2016), who found that 90% of participants were farming on communal land, 5% were leasing and the remaining 5% had title deeds to their farms. Small-scale farmers have exclusive rights to use communal land for crop production or as grazing for their livestock. The land is, however, owned by the state and controlled by traditional authorities, limiting long-term investment (Mathinya, et al., 2022).



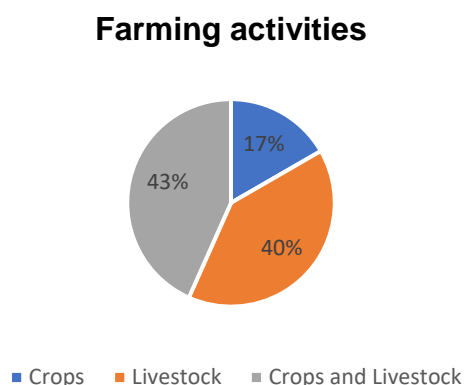
**Figure 4.9** Land tenure

Being state-owned, the land of small-scale farmers cannot be used as security at finance institutions as the farmers have no title deeds for the land. A limiting factor of communal land is the availability of space, as the population and number of farmers increase while the communal area is not expanding (Shabangu, 2016). Another concern about both communal and rented land is land degradation, as input and management of the land is not done in a sustainable manner, resulting in soil erosion and leaching of nutrients and therefore lower productivity (Mpandeli and Maponya, 2014).

#### **4.4.2 Farming activities**

The environment by itself carries risk, with ever-changing climatic conditions which impact the decision on which farming activities to pursue (Challinor, Watson, Lobell, Howden &

Smith, 2014). Primary factors such as land and water availability form an integral part of the decision making. The results from the research are shown in Figure 4.11 below; it was found that five of the participants only did crop farming, 12 participants only did livestock farming and 13 participants had mixed farming operations with both crops and livestock.



**Figure 4.10** Farming activities

South Africa, with its semi-arid climate, supports a monoculture agricultural plan; however, this greatly exposes the small-scale crop farmer to unpredictable markets, biased support programmes and changing climate conditions. Livestock production comes with its own challenges and is affected by disease outbreaks, low water levels, lack of grazing and weak markets (Musara, Tibugari, Moyo & Mutizira, 2021). To reduce the risks and exposure of small-scale farmers, there is a need to create and develop sustainable strategies to diversify crop and livestock production (Poulton, Kydd & Dorward, 2006).

#### **4.4.3 Farm size**

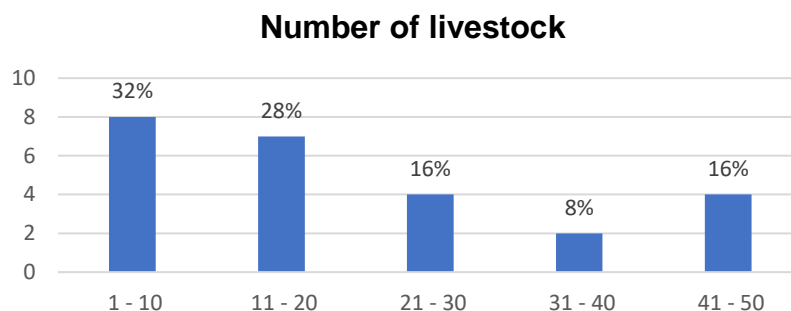
Farm size is important for establishing the current production capacity of small-scale farmers (Mutero, et al., 2016). Understanding the role of farm size in profitability, food security and the production gap between large commercial farms and small-scale farmers can inform efforts to assist small-scale farmers to improve the utilisation of their land (Mkuna and Wale, 2022).

According to the results, there was not a single participant who knew the size of his/her farm. This lack of knowledge may lead to improper planning and inefficient use of the farms. Previous studies by Myeni, et al. (2019) found that the average farm size of small-scale farmers was 2 ha, which supported findings that small-scale farmers farmed on 13% of the available land in South Africa. The remaining 87% is dominated by large commercial farms (Myeni, et al., 2019).

Farm size is an influential factor in soil fertility, which is compromised when production capabilities of a farm are exceeded to gain maximum output in either crop or livestock production (Mathinya, et al., 2022). Most of the land available to small-scale farmers in South Africa is communally owned and administered through traditional authorities. The communal land inhibits farmers from developing their farms as there is no ownership. Small-scale farmers who own small plots of land are more likely to invest in and develop their farms (Myeni, et al., 2019).

#### **4.4.4 Number of livestock**

Establishing the number of livestock owned by small-scale farmers assists in determining the potential for marketing of their livestock. More livestock owned increases the probability to participate in more markets and therefore potential profit (Cheteni and Mokhele 2019). The results from the research shown in Figure 4.11 indicate that eight of the participants had between one and 10 animals, seven participants had between 11 and 20 animals, four participants had between 21 and 30 animals, two participants had between 31 and 40 animals and four participants had between 41 and 50 animals. Of these animals, 55% were cattle, 16% were sheep, 27% were goats and only 2% were pigs.



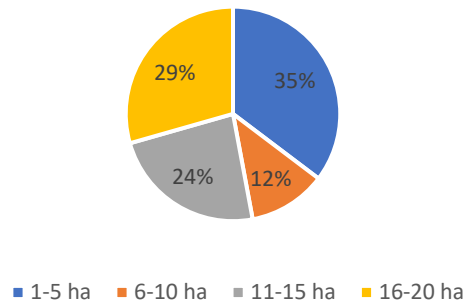
**Figure 4.11** Number of livestock

Sheep, goats and pigs fall in the category of small livestock, which are generally easy to maintain, easy to sell and significant in generating income for small-scale farmers. Small livestock aid in providing food security through own consumption and generating disposable income through sales. Cattle fall in the category of large livestock and are seen as an income-generating enterprise for rural small-scale farmers, although literature highlights the use of cattle for social and cultural benefits (Taruvunga, Kambanje, Mushunje & Mukarumbwa, 2022).

#### 4.4.5 Area under crops

Across South Africa, the predominant cropping method used by both large commercial farms and small-scale farmers is dry-land cropping, with small pockets of irrigation mostly by large commercial farmers. The crops are produced for diverse markets: large commercial farmers sell their produce nationally and internationally, while small-scale farmers grow crops primarily for own consumption and excess is sold locally as supplement to their low income. Small-scale farmers lack the benefit of economies of scale (Mathinya, et al., 2022). Figure 4.12 below shows that six of the participants planted crops on one to five ha, two participants planted an area of six to 10 ha, four participants planted an area of 11 to 15 ha, and five participants planted an area of 16 to 20 ha. Only two types of crops were planted, namely soybeans (*Glycine max*) and white maize (*Zea mays*).

### Area under crops



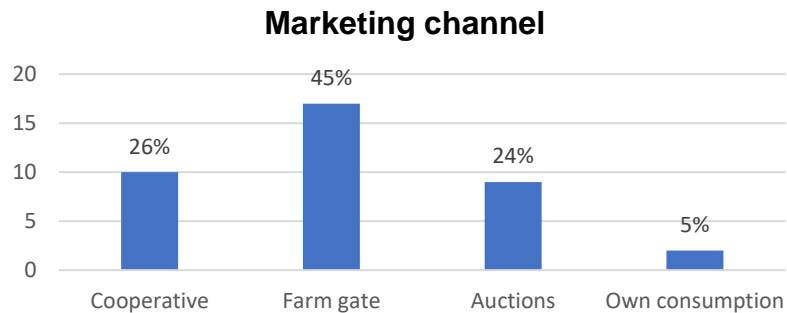
**Figure 4.12** Area under crops

Many small-scale farmers practise subsistence farming, relying on family labour and planting one or two types of crops to support the household. Crop production contributes to food security through household consumption and selling of excess to generate income (Mkuna and Wale, 2022). Small-scale farmers often shift between crops, depending on market prices, with the intention of generating more income (Kom, et al., 2022).

#### 4.4.6 Marketing channel

Marketing skills and selection of marketing channels can influence the productivity of small-scale farmers. The marketing channel links the small-scale farmer with the consumer which can be large food companies, retail shops or other households (Muzekenyi, Zuwarimwe & Beata, 2019). The results, shown in Figure 4.13 below, reveal that 10 of the participants marketed their produce through cooperatives, 17 participants marketed their produce privately directly from the farm, nine participants marketed their produce through regional auctions and two participants did not market any produce but consumed all within their household.





**Figure 4.13 Marketing channels**

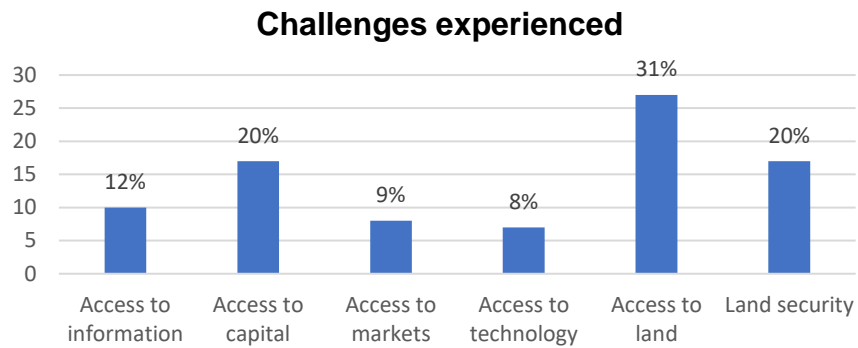
According to Mutero, Munapo and Seaketso (2016), small-scale farmers lack reliable markets and therefore sell their excess produce from their farmgate at low prices. Due to capacity constraints, small-scale farmers mostly sell small quantities at a time, which increases transport cost per unit (Mutero, et al., 2016). This is similar to the results found by Shapi (2017), who states that most transactions by small-scale farmers are small and cash based. Another factor limiting marketing channels is that the quality of produce is uneven; cooperatives demand high quality and deductions are made for any produce not meeting the quality specifications (Shapi, 2017).

#### **4.5 Challenges experienced**

To reduce poverty in developing countries, especially for the rural small-scale farmers, agricultural growth is required (Oluremi, et al., 2021). Both large commercial farmers and small-scale farmers face challenges which need to be overcome for farmers to maximise production (Shabangu, 2016). Agricultural development can be achieved through sustainable adoption of new technology, utilising purchased inputs to improve small-scale farmers' productivity. However, there are various common challenges impeding agricultural development (Shapi, 2017).

The research identified various aspects preventing small-scale farmers from reaching success. All of the farmers had more than one challenge. The challenges are shown in Figure 4.14 below: 10 participants lacked access to information, 17 participants lacked access to finance or capital, eight participants lacked access to markets, seven

participants lacked access to technology, 27 participants lacked access to additional land and 17 participants had land security challenges.



**Figure 4.14** Current challenges experienced by small-scale farmers

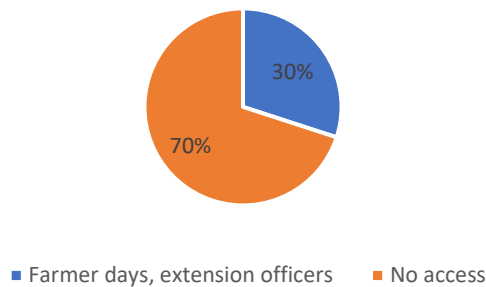
The findings relative to each challenge are discussed in the subsections below.

#### 4.5.1 Access to information

Most small-scale farmers in South Africa struggle with a lack of access to relevant and effective agricultural information (Mkuna and Wale, 2022; Shabangu, 2016). There is a direct relationship between access to relevant and effective information and the development of small-scale farmers. When small-scale farmers have access to agricultural information it improves their production capacity and opens more remunerative markets (Mutero, et al., 2016). Access to timeous information can assist small-scale farmers to increase the productivity and sustainability of their farms. Currently the absence of information, or timeous information, causes small-scale farmers, who are already food insecure, to miss available opportunities (Muzekenyi, et al., 2019).

Figure 4.15 below depicts the results of the research. Only nine of the participants had access to information which they received through attending farmers' days or from extension officers visiting their farms in the last year. The remaining 21 participants had no access to agricultural information, with no visits from extension officers in the last year.

### Access to information



**Figure 4.15** Information to which small-scale farmers had access

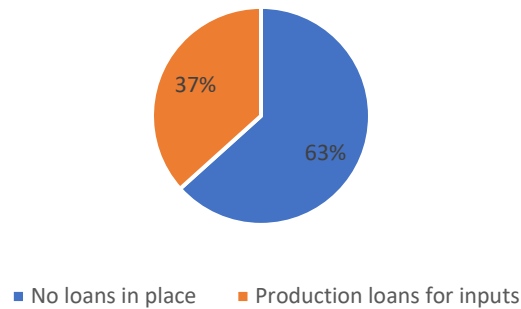
Agricultural information is easily accessed by large commercial farmers, allowing them to adjust and improve their strategies to continuously improve productivity (Mathinya, et al., 2022). Shabangu (2016) found that small-scale farmers felt greater availability of information could increase their production output. With a lack of access to information, the gap between small-scale farmers and large commercial farmers is widening (Shabangu, 2016).

#### 4.5.2 Access to capital

The access to credit has a significant impact on the market orientation and viability of small-scale farms. According to Mkuna and Wale (2022), improving credit availability is an important factor in improving farm productivity. When small-scale farmers are financially assisted, they are able to invest in greater productivity (Nkonki-Mandleni, et al., 2022).

According to the research results, shown in Figure 4.16 below, 19 of the participants had no loans in place. These participants funded the farms from their savings, the salaries of family members, inheritances and the selling of excess products to the market. The remaining 11 participants had production loans to fund their inputs for crop production. Similar to the current study, Nkonki-Mandleni, Manenzhe and Omotayo (2022) found that very few small-scale farmers used credit for their farming operations and the reason was lack of collateral or security required to obtain loans (Nkonki-Mandleni, et al., 2022).

### Access to capital



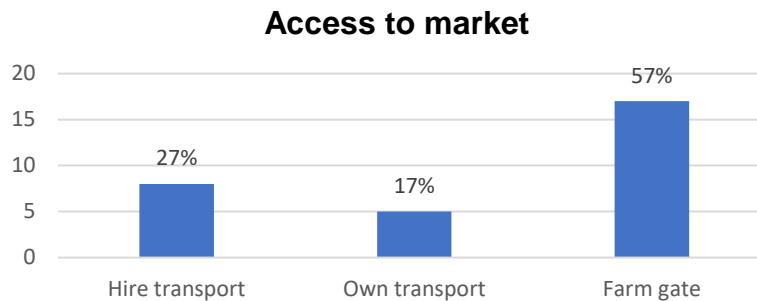
**Figure 4.16** Access to capital currently in place for small-scale farmers

Having enough capital available allows small-scale farmers to expand their operations, improve current farming practices and invest in new technologies. The lack of access to capital limits small-scale farmers and leads to lower economic growth in the marginal areas (Muzekenyi, et al., 2019); it also keeps farmers from following desirable production strategies, as fertilisers and biocides are compromised in bad years. The consequence is greater volatility of income and decreased revenue. Furthermore, the inconsistent income generated by small-scale farmers inhibits further investment in the farming operation (Mathinya, et al., 2022; Shabangu, 2016).

#### 4.5.3 Access to markets

The market is dictated by large commercial farmers and thus very competitive; small-scale farmers find it difficult to meet these standards (Shabangu, 2016). The low prices small-scale farmers receive for their produce result from market unavailability, shortage of transport, limited market information and poor quality of produce (Cheteni and Mokhele 2019). The price a farmer receives is determined by who the buyer is, in which market the product is sold and where the farmers sell their produce. The farmgate price for products is generally low, as buyers take advantage of the small-scale farmer who mostly needs the cash inflow, of the perishability of the produce and of the lack of transport to reach more profitable markets. When small-scale farmers receive low prices for their output, with high input prices, farm income is decreased further (Mkuna and Wale, 2022).

The research results, shown in Figure 4.17 below, indicate that eight of the participants needed to hire transport to sell their produce, five participants had their own transport to reach the market and 17 participants sold their produce from the farmgate.



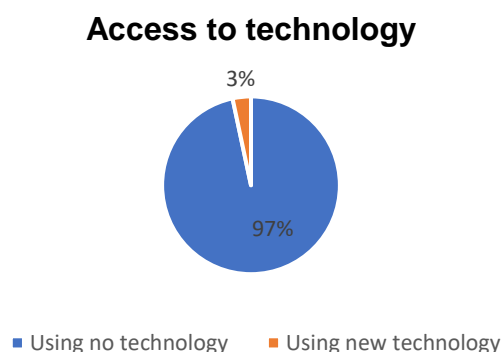
**Figure 4.17** Access to markets

Muzekenyi, Zuwarimwe and Beata (2019) found that small-scale farmers were limited by specific factors like poor infrastructure such as poor road conditions, lack of transport to markets from their farms, insufficient marketing skills, the absence of market infrastructure and high transactional costs. These restraining factors have allowed powerful traders to enter and control the market (Muzekenyi, et al., 2019). Similarly, (Cheteni and Mokhele 2019) found several factors restricting small-scale farmers' access to markets; these included poor infrastructure, lack of market information, lack of marketing experience and the inability to close contractual agreements (Cheteni and Mokhele 2019). Small-scale farmers often end up selling their produce to the second-best market options not because these markets are more profitable, but due to the inability to reach better markets (Mkuna and Wale, 2022).

#### **4.5.4 Access to technology**

Technology is key to improving the productivity of small-scale farms and increased technological development offers the opportunity for economic growth (Muzekenyi, et al., 2019). Where intensive technology is applied on small-scale farms, there tends to be greater productivity (Shabangu, 2016). The results collected from the research are shown

in Figure 4.18 below and reveal that 29 of the participants used no technology, with only one participant using new technology in crop production.



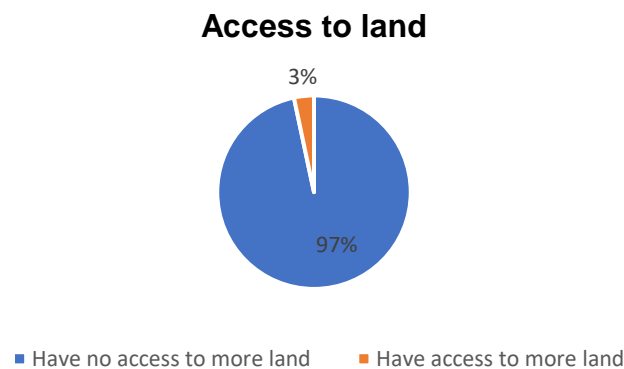
**Figure 4.18** Access to technology

Studies on the adoption of various technologies in developing countries have found factors influencing the use of new technology, like differences in natural resources, political situations, cultural ideologies and socioeconomic reality (Senyolo, Long, Blok, Omta & van der Velde, 2021). Education level affects the adoption of new technology and innovation and therefore the agricultural output of small-scale farms. According to Nkonki-Mandleni, Manenzhe and Omotayo (2022), a low level of education results in small-scale farmers rejecting new technology, which is similar to the results reported in this study. Figure 4.7 depicts the low level of education; this matches the number of small-scale farmers found to be using technology within their operations.

Small-scale farmers often have poor access to resources, which influences the use and adoption of technology. Improving the access to agricultural resources increases the use of technology and reduces production constraints for many farmers. Benefits of adopting technology include increased yield, lower labour demand and reduced pesticide use (Mathinya, et al., 2022). With regular information sessions and extension officer visits, the knowledge of small-scale farmers can be increased, enhancing the possibility of adopting new technology (Nkonki-Mandleni, et al., 2022).

#### 4.5.5 Access to land

With the fast growth of the global population, land allocated to small-scale farmers is decreased, affecting the agricultural development of these farmers (Shabangu, 2016b). Marketing of agricultural goods requires resources, of which farmland forms an integral part; without land, small-scale farmers are unable to satisfy formal markets (Mkuna and Wale, 2022). The results of the interviews are shown in Figure 4.19 below: only one participant had access to more land, although the farmer required capital to pursue it, while 29 participants didn't have access to more land. Several researchers found access to land to be a major challenge to small-scale farmers (Beharielal et al., 2022; Cheteni and Mokhele 2019; Muzekenyi et al., 2019; Myeni et al., 2019; Shapi 2017).

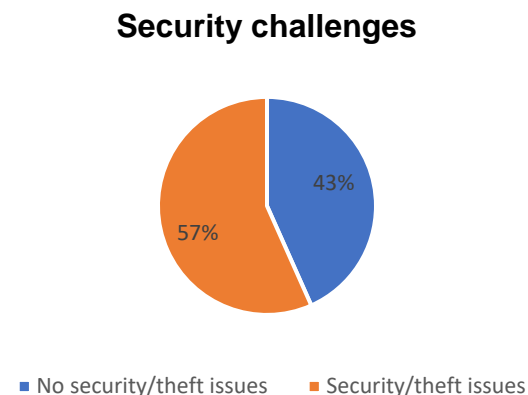


**Figure 4.19** Access to land

Access and rights to land usage in communal areas where the land is governed by changing communal rules, affects small-scale farmers (Mbatha, 2021; Shabangu, 2016). Small-scale farmers have no privacy rights on communal farms as farms are state-owned and managed by local authorities, which decreases long-term investment (Mathinya, et al., 2022). When small-scale farmers are able to access larger farm areas, the utilisation improves, leading to increased production (Shabangu, 2016). Myeni, et al. (2019) found that land ownership provided collateral to small-scale farmers who could acquire loans and reinvest in their farms.

#### 4.5.6 Land security

Theft, whether of crops or livestock, have broader implications for small-scale farmers than a mere loss – it affects household food security (Maluleke and Mofokeng, 2018). Theft has been found to be a major problem for small-scale farmers. Livestock theft has an economic effect across the livestock sector in South Africa, with R1.24 billion lost due to theft during the 2018/2019 financial year (Zantsi and Nkunjana, 2021). Theft of crops is an ongoing challenge to both small-scale farmers and large commercial farmers. The stolen crops are usually sold through smaller vendors in the district. Inadequate fencing on most small-scale farms allows the surrounding community easy access to steal large quantities of crops (Materechera and Scholes, 2022). The results of the research are shown below in Figure 4.20; 17 of the participants had experienced security and theft issues on their farms, while 13 of the participants had had no security or theft issues.



**Figure 4.20** Security challenges

Theft is not limited to crops and livestock but includes assets like equipment and fencing. Larger farmers are able to insure their assets, although it is not possible to insure crops or livestock against theft (Mathinya, et al., 2022). On small-scale farms, any theft is felt, as there is already low productivity and no easy means to replant or replace animals (Maluleke and Mofokeng, 2018). Combatting both crop and livestock theft is required, but these solutions come at a price (Materechera and Scholes, 2022). Large commercial farmers are already implementing some forms of security to reduce theft; these include hiring of security companies, secured fencing and proper identification of livestock



(Mathinya, et al., 2022). Potential solutions for livestock theft are branding, tattooing and frequent counting of animals (Zantsi and Nkunjana, 2021).

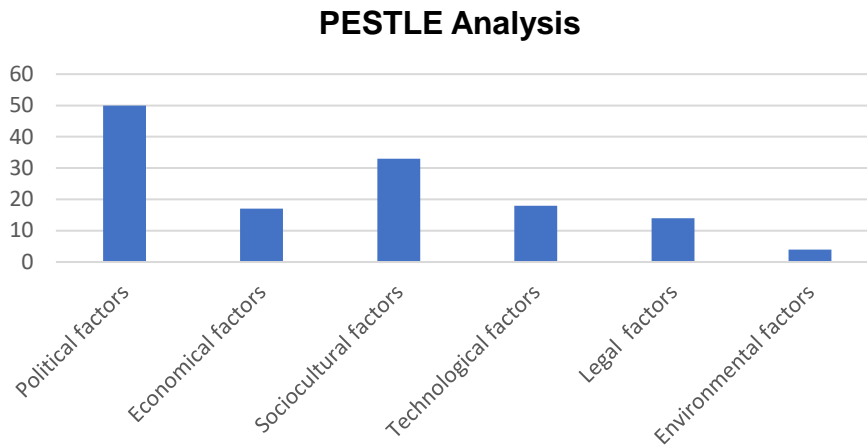
## **4.6 Mitigating strategies**

Mitigating strategies involve specific actions required to reduce and ultimately eliminate long-term risk from challenges experienced by small-scale farmers (Shabangu, 2016b). The aim is to decrease the impact these challenges have on the livelihood and productivity of small-scale farmers through a sustainable action plan. Implementing mitigating strategies will allow the study objectives to be achieved. Mitigating strategies for small-scale farmers in South Africa need to improve access to information, access to capital, access to markets, access to technology, access to land and land security. The mitigating strategies proposed to address the challenges involve the PESTLE analysis; a marketing strategy to meet market needs and requirements; and improving the value chain. Each of these mitigating strategies will be discussed and will be followed by the conceptual framework matrix.

### **4.6.1 Environmental strategies**

Globally there is a need to assist large commercial farms and small-scale farms to become more efficient and effective (Laosillapachoen, et al., 2019). The farming environment of small-scale farmers is filled with environmental factors influencing their productive capacity. Reducing the impact of these environmental factors on small-scale farmers will alleviate poverty and transform subsistence farmers into high-return farmers on the same farms (Frank and Penrose Buckley, 2012).

The participants in the study were asked what mitigating strategies, according to them, could help to overcome their challenges. The results were divided into the six factors shown below in Figure 4.21 using the PESTLE analysis.



**Figure 4.21** PESTLE analysis

The political factors proposed by the participants included action against corruption; reduced instability (which relates to the high unemployment rate in South Africa and will help decrease theft); initiatives for increased land reform to access more land; and instating government grants. Land reform is more successful when coupled with grants which are required for complementary investments. The grants allow small-scale farmers to access technology contributing to increased farm income (Davies, Kosec, Nkonya & Song, 2020).

With increased availability of market information, small-scale farmers will know how prices are determined based on product quality, what quality and quantity the market requires and how to adapt farming practices based on market needs (Mbatha, 2021). Economic factors proposed by the participants included consistent and available input supply; selling of produce as a farming group to improve market price and thus reduce their price risk; and expanding farming operations through education to minimise the risk of reduced yields.

The sociocultural factors proposed by the participants included better training sessions, increased farmers' days and other information-sharing platforms such as study groups and more guidance on marketing strategies. Creating information flow to small-scale farmers can allow these farmers to move from subsistence farmers to commercially viable farming operations (Shabangu, 2016). Through training, small-scale farmers gain the

necessary information and understanding of individual components of farming and how to use new technology on farms (Nkonki-Mandleni, et al., 2022).

The participants proposed technological factors such as improved access to new and easy-to-use technology through the farmers' days and training sessions on new technology showing the practicality of these technologies. The use of technology on small-scale farms allows these farmers to increase their productivity (Shabangu, 2016). Using technology can enhance productive capacity in developing countries. The use of technology on small-scale farms promotes the efficient conversion of resources into profitable production (Muzekenyi, et al., 2019).

On the legal factors, many participants expressed the need for access to credit, which would help improve the productivity of the farming operations. This is similar to the findings of Shabangu (2016), where farmers noted that access to credit would allow for increased production and thus greater profitability (Shabangu, 2016).

Climate change constitutes an economic and food security risk to small-scale farmers, through reduced production output (Shikwambana and Malaza, 2022). The environmental factors addressed by the participants were related to drought; they required training and information on how best to manage their available resources to overcome the effects of drought. Similarly, Shabangu (2016) found that weather was a threat to crops and budget as more money was consumed and in certain instances farmers had to replant crops to ensure they achieved a harvest.

#### **4.6.2 Marketing strategies**

Common marketing problems identified by small-scale farmers include low prices for their products, high transport costs, seasonal price variation, poor road networks, low quality produce, internal competition between farmers and trader commissions (ACORD Uganda 2010). Without access to competitive markets, small-scale farmers are denied the opportunity to compete with large commercial farmers (Mpandeli and Maponya, 2014). Small-scale farmers with surplus crops often stay trapped in poverty due to the inability to access profitable markets (Von Loeper, et al., 2018). Meeting market needs involves

four areas, as discussed in the literature review in Chapter 2. The results obtained from the interviews testify to the urgent need to help small-scale farmers sustainably meet market requirements. The participants made several suggestions, which are discussed below under each area.

The first area is channel and client, which involves small-scale farmers seeking better pricing for their produce through different marketing channels. As shown in Figure 4.18 above, only a few farmers owned their own transport. The suggested mitigating strategies included shared transport to alleviate high transport costs. This will further assist farmers to reach new markets, decreasing farmgate sales so that ultimately these small-scale farmers can realise a better price for their products.

The second area is price and promotion and entails small-scale farmers selling to processors with the required quality specifications. Formal markets and supermarkets require a quality and quantity guarantee. The participants stated that they needed training on the quality requirements and that increased access to information would assist them to obtain supply contracts.

The third area involves differentiation of their product through finding niche markets and different marketing strategies compared to the surrounding farmers. The participants agreed that improved skills training and increased information, not only on the market but also on general processing operations, would allow them to search for niche markets or change the way they market their products. Livestock farmers proposed setting up a rural butchery, thereby adding value to their livestock.

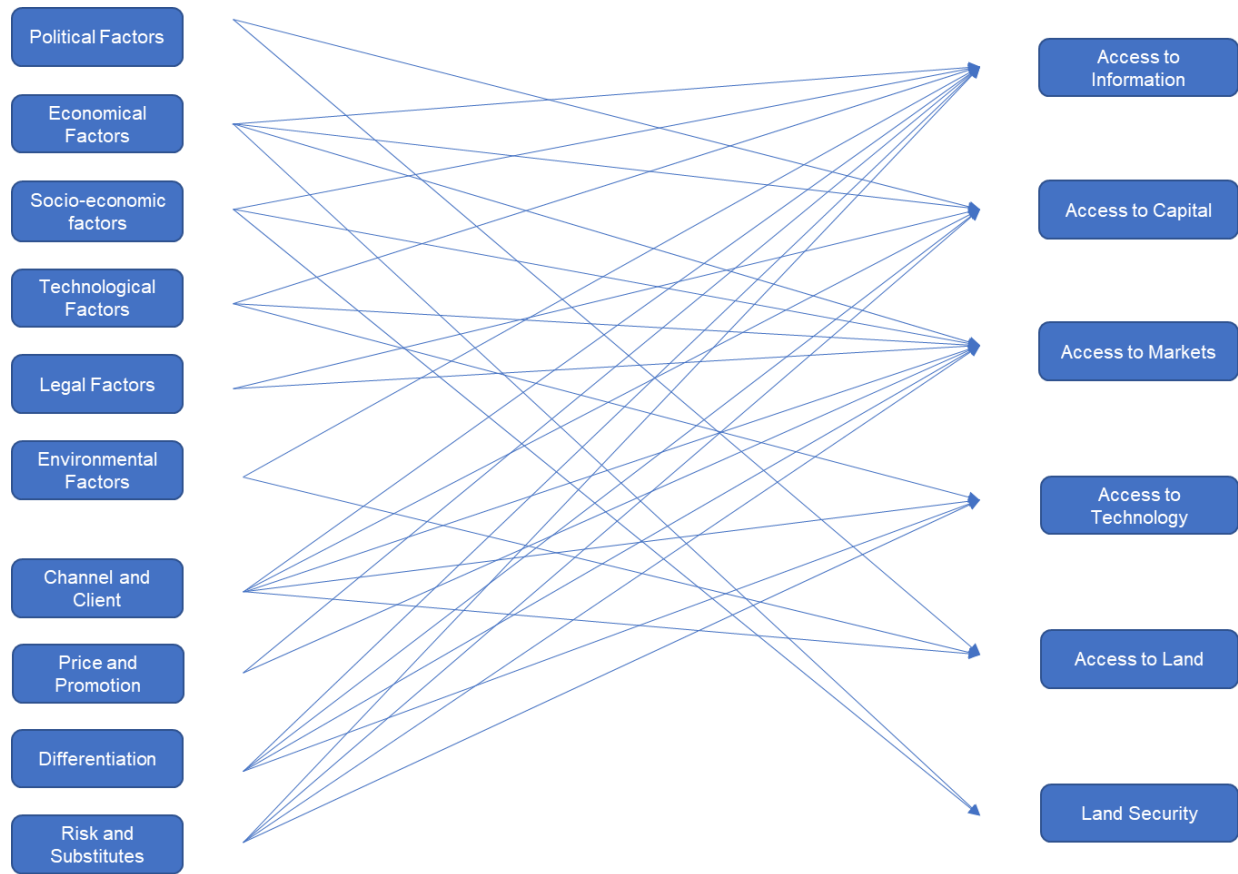
The last area is risk and substitution, where price setting can allow product substitution; customer preference and seasonal availability will influence the market needs. The participants suggested relevant market information regarding product pricing which would allow them to be more competitive in new market areas. Another proposal was to combine several small-scale farms and together purchase their inputs. This will reduce the cost of production, improve availability and promote more profitable farming operations.

### **4.6.3 Adapting the value chain**

The value chain in small-scale farming involves a range of functions or activities which are required to take a product from design and development through operations and beyond. Value chains can facilitate market access, thus increasing the profitability of small-scale farmers (Matsenjwa, Grobbelaar & Meyer, 2019). During the interviews it was evident that more work needed to be done on creating an environment with improved education, increased information, relevant training and better marketing skills before proposing adaptations to the current value chain.

### **4.6.4 Conceptual framework matrix**

The results from the interviews were used to develop the conceptual framework matrix as shown below in Figure 4.22. The environmental strategies link to all six challenges faced by small-scale farmers, with four factors linking to access to information, three factors linking to access to capital, four factors linking to access to market, one factor linking to access to technology, two factors linking to access to land and two factors linking to land security. The marketing strategies were linked to five of the challenges described, with four factors linking to access to information, three factors linking to access to capital, four factors linking to access to market, three factors linking to access to technology, one factor linking to access to land and no factors linking to land security.



**Figure 4.22** Conceptual framework matrix

The matrix developed ensures that each of the strategies proposed can be linked to the challenges experienced by the small-scale farmers. All challenges are equally important, and the matrix confirms that all challenges found in this study can be addressed by using both the environmental and marketing strategies.

#### **4.7 Trustworthiness of the research**

Trustworthiness is used as a measure for assessing the validity of qualitative studies (Bryman and Bell, 2014). The trustworthiness of qualitative research is about the accuracy of data collected and the researcher's interpretation of the results. The results above were derived from TCA and the trustworthiness was determined through using inter-rater reliability as presented in Chapter 3. The inter-rater reliability was 83%, and according to Saunders, et al. (2009) an inter-rater reliability of 80% is deemed acceptable.

Thus it can be confirmed that the research conforms and is acceptable. Furthermore, credibility was ensured through obtaining informed consent from all participants, transferability of mitigation strategies can be adapted to large commercial farms, dependability was obtained by recording and electronic storage of all results and confirmability by participants who had nothing to lose from participating and providing objective information.

#### **4.8 Conclusion**

The results of the interviews were described in this chapter, the number of participants was given and the demographic information, which included age distribution, gender distribution, marital status, number of children, education level and farming experience, was shared. Farm business information was discussed, including land tenure, farming activities, farm size, number of livestock owned, area under crops and marketing channels. Furthermore, current challenges and potential mitigation strategies were elucidated and the conceptual framework matrix was presented.

The chapter addressed the following empirical objectives as set out in Chapter 1:

E<sub>01</sub> To explore the current challenges small-scale farmers are experiencing: the challenges were presented and described in detail; the recommendations will be presented in Chapter 5.

E<sub>02</sub> To construct a conceptual framework to address the challenges experienced by small-scale farmers: the mitigating strategies were explained, with a matrix of how each strategy can address the challenges. The final conceptual framework will be presented in Chapter 5.

The following chapter will share the conclusions, recommendations and limitations of the study.

## Chapter 5

### Conclusions, recommendations and limitations

The aim of this chapter is to provide the conclusions, recommendations and limitations of the study. The chapter is structured by first outlining the purpose of the study, followed by the discussion of the results for each of the research objectives. Thereafter the limitations of the study are delineated and recommendations for future studies offered. Finally, the study is concluded.

#### 5.1 Purpose of the study

The purpose of this qualitative study was to explore the current challenges of small-scale farmers in South Africa and from these challenges develop a conceptual framework to address the challenges. The aim was to combat the challenges, attain food security and improve the livelihood of small-scale farmers. Food security is a threat globally, and small-scale farmers include poor and marginalised individuals who struggle to realise profitable yields. Mitigating the challenges will aid economic development and ensure sustainable food security.

The following objectives were studied:

T<sub>O1</sub>: To define, and apply the definition of, a small-scale farmer in South Africa.

T<sub>O2</sub>: To define food security and how small-scale farmers can benefit.

T<sub>O3</sub>: To determine how sustainable practices can benefit small-scale farmers.

E<sub>O1</sub>: To explore the challenges small-scale farmers in South Africa currently face.

E<sub>O2</sub>: To construct a conceptual framework to address the challenges of small-scale farmers in South Africa.



## 5.2 Recommendations per research objective

The following sections seek to establish if research objectives were achieved. Further examination of research findings presented in Chapter 4 will assist in drawing conclusions for each of the objectives. The research findings are related to the research objectives.

**Theoretical objective one:** To define, and apply the definition of, a small-scale farmer in South Africa

The literature lacks a clear definition of small-scale farmers. By accurately defining small-scale farmers, value can be added to their operations and their continued existence can be protected. Traditionally small-scale farmers have been defined by farm size, number of livestock, gross sales, labour use and production practices. The use of farm size alone does not create an accurate definition, as small farms have the potential to be more profitable than larger farms depending on the farming activities. Generally, there are two types of small-scale farmers: first, subsistence farmers who don't sell any of their produce; and second, farmers who sell their excess produce to generate income.

An accurate definition proposed by the FAO (2018) used two criteria: firstly, the economic size of the farming operation which considers farm size and livestock units or crop area; and secondly, the economic size measuring the revenue of the farming operation. Based on the literature, a definition was created and applied during the research of this study. The definition of a small-scale farmer is a farmer who operates on one to 20 ha of own or communal land for crop production, animal production or both with the use of family members or community members for labour. The production is not limited to own consumption and excess is sold for income, with an annual turnover bracket of less than R1 million. Livestock herds of small-scale farmers consist of one to 50 animals.

**Theoretical objective two:** To define food security and how small-scale farmers can benefit

Food security was defined from the literature and involves more than only food supply and increased production. Food security is based on three dimensions, namely access, utilisation and stability. By developing the skills of small-scale farmers through training and information sharing, food security and the risk of poverty can be reduced across all developing countries. The households of small-scale farmers have access to food supplied by the farm, and excess production can be sold to provide disposable income.

The contribution to food security by small-scale farmers is the ability to supply food to the community; employ surrounding community members, thus generating income for these workers; sell excess produce; and provide for their own household consumption. Furthermore, small-scale farmers can improve the dietary diversification and quality of food consumed within a community. Through practical and sustainable solutions, the productivity of small-scale farms can be improved, thus addressing food security on a global level.

**Theoretical objective three:** To determine how sustainable practices can benefit small-scale farmers

Sustainable agriculture was defined from the literature and entails the integration of plant and animal production practices for long-term food security. The focus of small-scale farmers is mostly to increase production, often neglecting nutritional quality, affordability and production in an environmentally and socially sustainable manner. Through sustainable agricultural practices, small-scale farmers can improve their farm productivity through the sustainable use of available natural resources, limiting the effects of fluctuating climatic conditions.

Small-scale farmers can achieve sustainable agriculture through techniques which increase production, while simultaneously conserving and protecting the farming environment with its natural resources. Sustainable agriculture leads to an ecological balance through conserving the environment, resulting in decreased financial and

technical constraints while improving motivation for the community. Small-scale farmers have a range of inputs which can reduce susceptibility to resource shortages and stimulate the agrobiodiversity on their farms.

**Empirical objective one:** To explore the challenges small-scale farmers in South Africa currently face

### **Access to information**

With access to relevant information, small-scale farmers can improve production capacity and gain access to more profitable markets. Many small-scale farmers are unaware of sustainable agricultural practices which can boost crop and animal productivity. Small-scale farmers need continuous support through access to training. The agricultural training programmes should stimulate small-scale farmers through visual demonstrations. During these training sessions small-scale farmers interact with one another, creating knowledge and information sharing platforms.

It is the role of extension officers and other role players, like seed, fertiliser, pesticide, feed, and vaccine companies, to devise supporting strategies and create a conducive environment where farmers can participate in information sessions. These strategies include building partnerships with the private sector, establishing farmer organisations and developing demonstration plots or farms.

### **Access to capital**

Small-scale farmers who obtain access to credit show improved productivity of quality products meeting the market standards. However, small-scale farmers struggle to access formal credit from financial institutions due to lack of collateral or security. Several other factors limit small-scale farmers' access to credit, like their low income, age, and basic levels of education. Most of the farmers in this study farm on communal land, further limiting their access due to land ownership uncertainties.

There is a need for credit agencies in rural areas to improve the accessibility for small-scale farmers. These credit agencies can educate small-scale farmers on how to obtain loans. Furthermore, the financial policies require adaptations to ensure easy access with reasonable interest rates. Increased government intervention can improve financial assistance and create credit programmes for small-scale farmers in the interests of food security and agricultural development.

### **Access to markets**

Access to a profitable market for all produce allows small-scale farmers to attain food security; reduces poverty in rural areas; and promotes sustainable agriculture. Small-scale farmers unable to participate in formal markets often receive low prices for their produce, resulting in a struggle for economic survival. Other factors in the exclusion of small-scale farmers from selling produce to formal markets are lack of transport, lack of market information and poor educational background.

Extension officers should develop strategies for small-scale farmers to bypass the middleman to sell their produce at more profitable prices. There are several possibilities already available to large commercial farmers which can easily be adapted, like mobile auction platforms and online marketing platforms. The use of these platforms can reduce transport costs and infrastructure requirements. Furthermore, small-scale farmers can benefit from input subsidies, post-harvest storage facilities and negotiation of pre-concluded contracts.

### **Access to technology**

Technology is usually absent on small-scale farms as farmers often have poor education, restricted access to information, low skills levels, advanced age and low income. Using new technology may lead to more efficient and profitable farming operations. Increased technology on small-scale farms not only improves productivity but also contributes to food security.

The use of technology on small-scale farms can be promoted through visual presentations on using new technology. Farmers witnessing the improvements are more likely to utilise these technologies. Information days and training sessions will help small-scale farmers to gain a better understanding of the significance of using technology on their farms. Extension offices can provide technical guidance through on-farm training sessions.

### **Access to land**

Small-scale farmers with access to land are more likely to adopt sustainable agricultural practices, invest in their farms, expand their farming operations, gain access to new markets and generate more income. Restricted land access prevents the economic development of small-scale farmers. Larger farms can accommodate diversification into crop-livestock farming activities and have increased grazing availability for more livestock as well as larger crop areas. Diversification allows small-scale farmers to utilise the crop residues for their livestock. Land ownership facilitates the granting of loans to small-scale farmers to invest in their farms. It is important for government policies to address land distribution and ownership, to alleviate poverty and create rural development.

### **Land security**

In South Africa, theft is common on both large commercial farms and small-scale farms. Theft is not restricted to crops or livestock but also includes assets. Successfully controlling theft will lead to improved sustainability of small-scale farmers and improved competitiveness across all business enterprises. Extension officers play an integral role in advising farmers on innovations in security and aid farmers in decision making to improve their livelihoods.

Several recommendations can be made to livestock farmers to control theft, like livestock identification; accelerated action from the government to fix the criminal justice system; strategic investment in technology to fight livestock theft; improved security checks at

auctions and abattoirs; enhanced intelligence on livestock theft syndicates; proactive security groups consisting of farmers and local law enforcement members patrolling farms; and empowering the disadvantaged and youth through employment opportunities. Crop farmers can benefit from most of these recommendations, but may include guards, proper fencing and diversification into different types of crops.

**Empirical objective two:** To construct a conceptual framework to address the challenges small-scale farmers face in South Africa

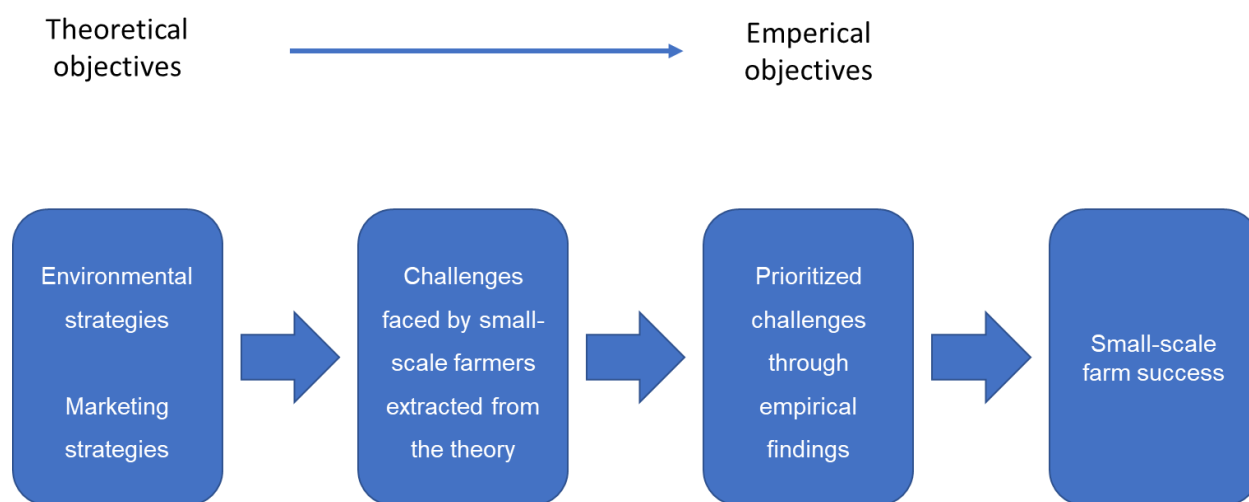
The aim of the conceptual framework is to specify long-term actions to minimise or eliminate the challenges of small-scale farmers. By reducing the impact of the challenges on small-scale farms, productivity can be increased, food security can be improved and the livelihood of these farmers can be enhanced.

The productivity of small-scale farms is influenced by environmental factors. Through a concise action plan, the impact of these environmental factors can be ameliorated, resulting in reduced poverty and transforming subsistence farms into high-return farms. The recommendations for each of these environmental factors were discussed in Chapter 4 under the PESTLE analysis.

Gaining access to competitive markets allows small-scale farmers to compete with large commercial farms. Small-scale farmers often accept lower prices for their produce due to limitations on transport to the markets, seasonal price variation, poor road infrastructure in the rural areas, lower quality products, competition with neighbouring farms and commission paid to the middleman. The recommendations for each of the marketing areas were discussed in Chapter 4 under marketing strategies.

The conceptual framework constructed below in Figure 5.1 shows how the preliminary conceptual framework evolved. The environmental and marketing strategies were identified and defined based on the literature. The challenges of small-scale farmers were extracted from the literature, whereafter the empirical data were gathered through qualitative research. Access to information, access to capital and access to market were

most prominent in both strategies and will need to be prioritised. This doesn't discount the other empirical challenges which remain important.



**Figure 5.1** Conceptual framework

The main difference between the conceptual framework and the preliminary framework is that the value chain improvements were removed. It was evident from the interviews that the primary focus should be on creating a conducive environment through improved education; relevant agricultural information; training; and strengthened market utilisation before proposing adaptations to the current value chain.

### **5.3 Limitations of the study**

Certain limitations were acknowledged during the study. This was a qualitative study, and the results may not be generalised to all small-scale farmers in South Africa. The sample size of 30 participants was small, with the literature reporting more than two million households engaging in subsistence-oriented agricultural activities. Time constraints impacted the broadness of the study – farmers were only interviewed in a small area within South Africa. Additional perspectives from other key stakeholders within the agricultural environment would aid in aligning with the challenges and mitigation strategies of these small-scale farmers. The study was unable to include the mitigation

strategy focusing on adaptation of the value chain; more research and field work is required.

#### **5.4 Recommendations for future research**

To improve on this research, it is recommended that future studies focus on small-scale farmers in broader areas across South Africa. Challenges experienced in the focus area might differ from challenges experienced in other areas. The additional challenges may require adaptations to the framework for mitigation strategies. Future studies will be required to use a longitudinal approach, where the framework can be implemented and the resultant success evaluated. Furthermore, future research may segregate research and focus on either crop or livestock farmers, whereas this study combined the two activities.

Follow-up interviews could throw light on some questions and aid in understanding whether the suggested conceptual framework can be applied. Future research should focus not only on the small-scale farmer but also on the stakeholders involved. The key stakeholders might include extension officers from government or private agricultural organisations, seed, fertiliser, pesticide and feed companies, equipment suppliers, universities and other research facilities and finally stakeholders within the marketing environment. Lastly, the value chain within small-scale farming needs to be reviewed and adaptations made to further improve the livelihood of these farmers.

#### **5.5 Conclusion**

In this chapter, the five research objectives were discussed with the primary focus on whether these objectives were achieved. From the discussion and recommendations, it is evident that all five research objectives were achieved based on the data collected from in-depth interviews. In this study, the literature was used to define a small-scale farmer within South Africa; food security was defined and how it applies to small-scale farmers was described; and the importance of sustainable agricultural practices in small-scale



farming operations was established. Furthermore, the current challenges of small-scale farmers in South Africa – access to information, access to capital, access to markets, access to technology, access to land and land security, amongst others – were explored. Lastly, a conceptual framework was constructed to address the challenges of small-scale farmers. The framework uses environmental and marketing strategies to mitigate the challenges faced by small-scale farmers in South Africa. Limitations of the current study and recommendations for future studies were discussed.

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## Appendix A

Graduate School of Business Leadership, University of South Africa, PO Box 392, Unisa, 0003, South Africa  
Cnr Janadel and Alexandra Avenues, Midrand, 1685, Tel: +27 11 652 0000, Fax: +27 11 652 0299  
E-mail: [sbl@unisa.ac.za](mailto:sbl@unisa.ac.za) Website: [www.unisa.ac.za/sbl](http://www.unisa.ac.za/sbl)

### SCHOOL OF BUSINESS LEADERSHIP RESEARCH ETHICS REVIEW COMMITTEE (GSBL CRERC)

29 August 2022

Ref #: 2022\_SBL\_MBA\_049\_FA  
Name of applicant: Mr AW Thornhill  
Student #: 12726656

Dear Mr AW Thornhill

**Decision: Ethics Approval**

**Student:** Mr AW Thornhill [12726656@mylife.unisa.ac.za](mailto:12726656@mylife.unisa.ac.za), +27 79 525 6078)

**Supervisor:** Dr Colene, Hind, ([hindc@unisa.ac.za](mailto:hindc@unisa.ac.za), 0835895186)

**Project Title:** Developing a framework to address the challenges faced by small-scale farmers in South Africa

**Qualification:** Master in Business Administration (MBA)

**Expiry Date:** December 2023

Thank you for applying for research ethics clearance, SBL Research Ethics Review Committee reviewed your application in compliance with the Unisa Policy on Research Ethics.

#### **Outcome of the SBL Research Committee: Approval is granted until December 2023**

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the SBL Research Ethics Review Committee on the 26/08/2022

The proposed research may now commence with the proviso that:

- 1) The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached
- 2) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
- 3) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the SBL Research Ethics Review Committee.
- 4) An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.
- 5) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Graduate School of Business Leadership, University of South Africa, PO Box 392, Unisa, 0003, South Africa  
Cnr Janadel and Alexandra Avenues, Midrand, 1685, Tel: +27 11 652 0000, Fax: +27 11 652 0299  
E-mail: [sbl@unisa.ac.za](mailto:sbl@unisa.ac.za) Website: [www.unisa.ac.za/sbl](http://www.unisa.ac.za/sbl)

Kind regards,

*NBW Mlitwa*

Prof N Mlitwa

**Chairperson: SBL Research Ethics Committee**

011 - 652 0381/ [wiltonb@unisa.ac.za](mailto:wiltonb@unisa.ac.za)

*Pumele Msweli*

Prof P Msweli

**Executive Dean: Graduate School of Business Leadership**

011- 652 0256/[mswelp@unisa.ac.za](mailto:mswelp@unisa.ac.za)

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## Appendix B



### Digital Receipt

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## Appendix C

MBA5929

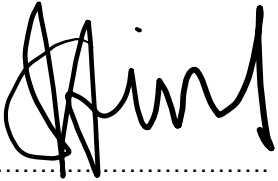
### CONSENT TO SUBMIT RESEARCH REPORT FOR EXAMINATION 2022

Consent is hereby given to:

Student name: Alexander W. Thornhill

Student number: 12726656

to submit his research report in its final form.

Supervisor Signature:  .....

Date: 8 December 2022

Supervisor Name: Colene Hind

The student acknowledges that sufficient feedback was provided by the supervisor and that s/he took the responsibility to attend to the feedback in a way that satisfies the requirements for a research dissertation on the MBA and MBL level.

Student signature  .....

Date: 08/12/2022

## **Appendix D**

### **Discussion Guide - Developing a framework to address the challenges faced by small-scale farmers in Southern Africa**

---

#### **Introduction of subject to participant**

- Thank the participant for accepting the interview.
- Introduction of self and reading of consent to the participant including that all information will be kept confidential and that the participant can opt out at any stage of the interview. Verbal consent to be obtained before commencement.
- Indicate that the interview estimated time is 30 minutes.
- Give a brief background of the study and purpose of study.

---

#### **Demographic information of participant**

- Age
- Gender
- Marital status
- Number of children
- Level of education
- Years of farming experience farming

---

#### **Farm business information of participant**

- Where is the farm located?
  - o Area
  - o Province
- What is the size of the farm?
- What is the land tenure? (own land, rented land)
- What are the current farming activities on the farm?
  - o Crops – the area planted and what crops?
  - o Livestock – livestock type and number of livestock?

- Is any of the farm output sold for generating income?
  - If any production is sold, which marketing channel is used?
- What are the current challenges you are experiencing?
  - Do you have access to agricultural information?
  - Are there any loans currently in place?
  - How are inputs of the farm financed?
  - How are products transported to and from the markets?
  - Are there any digital technologies used on the farm?
  - Do you have easy access to larger pieces of land?
- In your opinion, what are the solutions to these challenges you are experiencing?

## **APPENDIX E**

Maiana 11  
5 Maiana Street  
Brummeria  
PRETORIA 0184

12 December 2022

Dear Sir/Madam,

### **Declaration of language editing**

I, Magrietha Maria Engelbrecht , hereby declare that I have personally read through the research report of Alexander Wallace Thornhill in December 2022 and have highlighted language errors.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Magrietha Maria Engelbrecht', written in a cursive style.

MM Engelbrecht

12 December 2022